

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



MAJOR ARTICLES

- II. Subsurface and Surface Land Economics
 JAMES SALISBURY, JR. and LEONARD A. SALTER, JR.
 "Navigable Waters" as a Legal Fiction HAROLD KELSO
 Rent Control JAMES C. DOWNS, JR.
 The Relation of Farm Tenure to Soil Erosion OTIS T. OSGOOD
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DEPARTMENT ARTICLES

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 Public Utility Financing: Third Quarter, 1941 ... R. G. DUDLEY and W. H. EVANS

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II. Subsurface Resources and Surface Land Economics*

By JAMES SALISBURY, JR.† and LEONARD A. SALTER, JR.‡

THE first installment of this article described the emergence of the problem of interrelations between subsurface resources and surface land economics, indicated its extent, and analyzed its effects upon land valuation and transfer, and land tenure. It remains here to consider its relation to land settlement, land utilization, land taxation, and land conservation and reclamation.

Land Settlement. Land settlement problems created by interrelated surface-subsurface land utilization factors are confined largely to the actual extraction and abandonment phases of the cycle. The severity of the problem depends, in part at least, upon several factors. One is the position of the area with respect to these two final stages of the exploitation cycle. Another is the nature of the mineral resource with respect to man-labor requirements and changes in technical factors of mineral recovery. Furthermore, the intensity of land settlement

problems varies to some extent with the availability of alternative employment in the vicinity, and this is especially significant for areas passing through the phase of abandonment.

Another aspect of general significance is that for any particular locality the characteristics of land settlement activity will depend in part on the backgrounds and personal characteristics of the industrial laborers employed for the extraction processes. For example, it is quite possible that urban and industrial backgrounds of a group may be overcome, should it be necessary to shift from subsurface industrial employment to agricultural endeavors; whereas, another group may never shake off the limitations of urban backgrounds or racial characteristics in adjusting to surface land operations in gaining a livelihood, if that becomes necessary.

A period of resource development is almost invariably accompanied by an influx of industrial workers into the area. The Illinois Tax Commission noted this

* 17 *Journal of Land & Public Utility Economics* 270-9 (August, 1941).

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in newly opened mineral areas.³⁶ In an area composed of the five counties of the East Texas oil field population increased 49% during the development phase of the cycle. Urban centers expanded from 3 to 8 times in size. This increased settlement of the rural and urban areas was attributed to an influx of population drawn to the new development in search of employment, business opportunities, and other attractions in an oil "boom town."³⁷

This immigration of people will be absorbed in part by existing villages and cities near the producing areas or will be served by residences of some sort in the kind of new villages to which reference has already been made in terms of residential real estate values. A number of the workers will very likely establish residences in the open country within commuting distance of the place of employment and may engage in part-time farming enterprises. The prevalence of such settlement has been noted in a general way in various preliminary studies.

In a study of 185 cases in the West Moreland area of Pennsylvania, 34% of the part-time farmers worked in coal mines and 31% in oil and gas fields. Of all part-time farmers in 6 areas, 17% worked in the extraction of minerals.³⁸

Tryon points out that for the country as a whole, 7% of the workers in mineral extraction live on farms and "three miners out of every five belong to what the Census terms the rural non-farm population."³⁹ He also presents a convincing picture of the increasing tendency of miners to live at some distance from their work. For example, "on the

Mesabi iron range, some miners have taken small farms 10 or 12 miles away and drive in daily to their jobs." He also states that "in the last ten years, the limit of daily travel has been doubled or quadrupled by the network of highways spreading through the mining fields."⁴⁰

In strip-coal mining areas, it has been found that workers employed in the industry are likely not only to establish new residential units but they are very likely to make use of remnants of former farm units, parts of which have been stripped, for part-time farming purposes. A recent Ohio study, for instance, says, "A considerable proportion of the householders living on the strip mined tracts, indicated that a share of their living was obtained from outside sources . . . persons who lease or sell their land for stripmining purposes often moved to new localities, being replaced in some cases by persons who have more interest in mining and industry than in agriculture."

In three Ohio counties 26% of the rural residents were employed as miners. In Harrison and Jefferson counties, Ohio, a high percentage of the rural householders had been in their present location a relatively short period of time. The report states, "For the most part these were miners attempting to supplement uncertain income by part-time farming."⁴¹

The characteristics of settlement during the abandonment stage of the cycle vary, depending largely on alternative employment opportunities. In general, during the abandonment stage there is undoubtedly an exodus of workers from the area. This affects local institutions, tax bases and revenues, community life, and in general all of the factors combin-

³⁶ Illinois Tax Commission, *Property Taxation: Assessed Valuations, Levies, Tax Rates and Tax Extensions, 1937 and 1938* (1940), p. 6.

³⁷ George Weber, "East Texas Still Dominant Factor in Industry as Tenth Producing Year Ends," *The Oil and Gas Journal*, October 10, 1940, p. 32.

³⁸ M. E. John, "Part-Time Farming in Six Industrial

Areas in Pennsylvania," *Pennsylvania Agric. Exper. Sta. Bulletin* 361 (1938).

³⁹ C. Goodrich, et al., *Migration and Economic Opportunity* (Philadelphia: Pa. Univ. Wharton School of Finance and Commerce, 1936), p. 303.

⁴⁰ *Ibid.*, p. 311.

⁴¹ Moore and Headington, *op. cit.*

ing to create a stable social and economic community.

It is also known that the adjustment of laborers is by no means complete, despite the migrations to newer opportunities of employment. A number of workers may remain in the locality, as investigations have revealed, to search for whatever means of existence they can discover. A number of these are known to establish themselves as small-scale subsistence farmers, with the intention of making living adjustments to their lower non-farm income, or with the hope of developing a sufficient farm enterprise to replace previous income sources. Duncan has observed certain aspects of this phenomenon and has pointed out that during the periods of abandonment in subsurface areas, "... released workers became squatters and survived as best they could by very small-scale subsistence farming or part-time farming." He further notes that the process of abandoning mineral areas works "... fiercely and relentlessly to force much shifting of population from non-agricultural pursuits to farms."⁴²

The fact that mineral production locations are often rather isolated adds to the settlement problems caused by the depletion of the resource or declines in activity for other reasons. Evidence of these settlement problems may be noted in the attention which has been given to stranded mining communities, especially that which centered in the subsistence homestead program.⁴³

Land Utilization. Suspicion, knowledge, or extraction of a subsurface deposit affects surface land utilization in at least two general ways. There are

changes in the major types of economic land use, and, secondly, surface land utilization changes within the major land uses which do not change. It is obvious that for particular tracts there will be a shift to actual mineral extraction uses, and in some instances both surface and subsurface uses take place jointly.

Another effect on surface zones of production takes place when economic farm units are split up into several smaller tracts. Even if they are not physically divided, they may be so altered, because of their proximity to operations, that their major use category must be changed.

Several examples of these kinds of influences have been noted. Attention has been directed to the establishment of new part-time farms for the industrial employees on units or parts of units which were formerly in full-time commercial agricultural enterprises. Another example of these types of effects has been indicated in preliminary studies of strip-coal mining operations where it has been found that so much of the farm land may be destroyed as to require a complete adjustment of the farm enterprise. In other cases strip-mining operations have isolated buildings or some of the farm land from other parts in such a way as to interfere with the previous type of farm organization.⁴⁴ Numerous cases have been observed where the installation of central power pumping plants, from which rod lines extend to pull the pumping equipment of an oil well, divides the field system of a farm unit in such a way as to require adjustments in the type of farm organization.⁴⁵

In the Ohio report previously referred

⁴² O. D. Duncan, "The Theory and Consequences of Mobility of Farm Population," *Oklahoma Agric. Exper. Sta. Circular No. 88* (May, 1940).

⁴³ See, e.g., C. Goodrich, et al., *op. cit.*; F. L. Ryan, *The Rehabilitation of Oklahoma Coal Mining Communities* (Norman: Univ. Of Okla. Press, 1935); "General

Information Concerning the Purposes and Policies of the Division of Subsistence Homesteads," *Circular No. 1*, U. S. Dept. of the Interior, Nov. 15, 1933.

⁴⁴ Moore and Headington, *op. cit.*

⁴⁵ Salisbury, Jr., Ramsey area study, *op. cit.*

to, the data for two of three counties studied indicated deficiencies in acreages of crop land and pasture land for tracts on which stripping operations were conducted.⁴⁶

Hannah and Vandervliet⁴⁷ list several ways in which strip-coal mining operations in an area may cause adjustments in the utilization of land remaining in farm units. Among these are: the spreading of noxious weeds, the increase of predatory birds and animals, obstruction of natural drainage, lowering of the water table, and shifts in the demand for labor. But even more than all of these is the psychological effect on the attitudes and plans of the remaining farmers with respect to the future prospects of maintaining farm enterprises in their community.

Still another illustration is the change in land utilization in the proximity of smelters. Sanders has noted the direct consequences of smelter fumes on surface land cover, as well as other less direct effects on land utilization through effects on livestock and health conditions of the people.⁴⁸ As problems of land utilization which involve physical land damage, conservation of soil and water resources, and salvaging of land attract wide concern, they will be discussed separately in a later section.

Attention should be called here, however, to the effect of the influence of subsurface mining on urban land utilization. Whitaker shows the effect on residential locations of abandoned open iron ore pits and of holdings of ore mining concerns. He also indicates the severity and importance of actual prospective caving of the surface on the location of streets, residences, and other urban land uses

when such caving is caused by the shaft mining of iron ore. He says that if the mines near Negaunee, Michigan, operate at their normal rate,

"For the third time it will be necessary to move houses and close streets. . . . And perhaps the third removal will be followed by a fourth and a fifth. The inhabitants confidently expect this to be the course of events. It is a commonly expressed opinion that 'the entire city will have to be moved some day.' As a matter of fact, *only* the central residential district and the commercial district will be affected if the encroachment continues."⁴⁹ (Italics supplied.)

Land Taxation. Beyond doubt one of the more violent maladjustments experienced as a result of the exploitation of subsurface resources is displayed in public finance conditions. With the discovery of valuable mineral deposits comes a phenomenal rise in the tax base, making possible the support of new and expanded public services, the demands for which are accentuated by the increasing needs of the people for the services and the increased numbers to be serviced. Here again we find visible evidence illustrating phases of the subsurface cycle, as typified in the following examples of public finance problems of surface utilization arising from subsurface exploitation.

What the Illinois Tax Commission discovered in that state has been present in practically every new mineral field of consequence. In reporting on the effect of oil development the commission has pointed out,

"... the social and economic consequences of this development are far reaching and the effects upon the activities of local governments in these areas have been by no means insignificant. The influx of laborers and other workers to the oil fields has increased the demands upon the local units for roads, schools,

Center Dominated by Iron Mining," *Bulletin*, Geographical Society of Philadelphia, Vol. XXIX, 1931; reprint, U. of Chicago Libraries, p. 64.

⁴⁶ Moore and Headington, *op. cit.*

⁴⁷ *Op. cit.*

⁴⁸ Sanders, *op. cit.*

⁴⁹ J. R. Whitaker, "Negaunee, Michigan: An Urban

fire protection, police protection and other services. Transportation of heavy machinery . . . has necessitated greater outlays for the construction and maintenance of roads and bridges. On the other hand, increased prosperity has been followed by a marked decrease in the relief burden; . . ."

An example is cited of the change in total assessed valuation in Noble township of Richland County:

"it experienced a rise of no less than 229 per cent between 1937 and 1938. Levies for building purposes appeared for three school districts in 1938 where there had been no such levy in earlier years."⁵⁰

One of the world's largest oil areas is the East Texas field which is composed of five counties containing more than two million acres of land. It represents a "going field" or zone of actual production where the stage of production has passed its peak. According to Weber, who studied physical and economic factors in this area, in 1939 the five counties had a total assessed valuation of \$272,000,000. Property used in direct connection with subsurface operations accounted for 83% of this amount. The total valuation was 435% greater in 1939 than in 1930. (These two dates represent the duration of the period of discovery and the flush stage of production in a typical oil field.) In Gregg County, where most development took place, assessed valuations arose to the phenomenal amount of 2,000%.

Taxing authorities of Texas have estimated that during this period more than \$118,000,000 was collected in federal, state, and local taxes for the area.

For 12 representative school districts an analysis of data reveals that 82% of the revenues collected for school purposes originated from properties used directly in connection with subsurface operations. In five of these districts over 90% originated from this source.⁵¹

This field is now starting into the final stages of the operation cycle. It is estimated that under existing conditions the probable remaining life of the field is less than 30 years. If demand, such as the program for national defense, should call for increased production or more intensive exploitation, then the life of the area would be materially shortened.

Although such a development may bring an era of prosperity for a while, experience has shown that the "boom" is usually followed by social and economic repercussions.

The Slick area of Creek County, Oklahoma, represents an extreme case of a decadent-abandoned mineral area. The public finance patterns vividly portray its story. The municipality of Slick came into being in 1920. During the height of its "boom" in 1921, the total assessed valuation was one and one-quarter million dollars. By 1935 this had decreased by the astounding amount of 95%. Personal property, which includes drilling equipment and machinery, pipeline plants, gasoline plants, etc., decreased a total of 99.4%, real estate by 92.2%, and public utility property 78.4%.

In 1921 it was necessary to levy only 16 mills to care for expanded public service costs, such as governmental purposes and maintenance, debt service, and building costs. The Slick consolidated school district was also included in this levy. By 1935, because of the decrease in assessed valuations, it was necessary to levy 335.5 mills. One might wonder how such proportionately high taxes were paid. The answer is that they were not paid! From 1931 to 1936 the lowest tax delinquency amounted to 72%—this in 1936. In 1930 the tax delinquency amounted to 87%; for 1931, exactly 100%.

⁵⁰ Illinois Tax Commission, *op. cit.*, p. 6.

⁵¹ Weber, *op. cit.*

The unfortunate financial history of the Slick area reaches a climax with the problem of bonded indebtedness. In 1922 Slick had a bonded indebtedness of only \$10 per \$100 of valuation. By 1935 for each \$100 of remaining assessed valuation there was a bonded indebtedness of \$274.12. Likewise, not one dime has been paid on the principal or the interest since 1926. The total debt is now well over one-quarter million dollars, and the greater part constitutes a lien against the land.⁵²

The subject of land taxation in strip-coal mining areas is one of considerable debate. It is believed that in certain areas operating concerns are particularly careful not to seek downward adjustments in property assessments after coal has been removed. The purpose of this policy is to avoid making public opinion antagonistic to the undesirable features of strip mining and thus to avoid unfavorable taxing policies or legislation with respect to the still unexploited lands. Yet, under such arrangements it would appear that even greater repercussions are due at the end of an inevitable but uncertain period when the concerns must abandon their exhausted mines.

Thus, it becomes increasingly clear that surface land users in and near subsurface resource areas are subjected to peculiar and unstable public finance conditions. During the developmental period they may share in the benefits in a reduced millage tax rate, although it soon becomes apparent that this temporary advantage may be offset by (1) increased assessed valuations in property which may not reflect any real increase in the worth of the property, (2) they may be forced to "participate" in the expansion of the local governmental

services where they might prefer not to underwrite such "benefits."

During the period of decline and abandonment the surface utilizers who are also local residents will have to carry an increasing proportion of the *fixed* burden of expenses. Furthermore, these burdens are those contracted at a level far out of line with remaining land resources, and represent public expenditures which would otherwise not exist had subsurface wealth not been uncovered.

Land Conservation and Reclamation. Physical surface land damage aspects of the surface-subsurface resource relationship attract much attention from persons interested in surface utilization because these aspects are more directly observable than some of the other factors we have discussed. The problems of land damage are largely associated with the production and abandonment stages of the subsurface exploitation cycle. However, it is not entirely impossible that such problems can arise prior to the production phase. As most of the conservation and reclamation problems arise from direct physical conditions, they tend to be confined to operational zones of influence. But in so far as psychological and legal considerations lie behind conservation problems, they may arise in any area subjected to any subsurface resource influence.

It is probably true that maladjustments arising from land damage often do not begin to attract much general concern until after there has been direct local experience with the difficulties of reclaiming and salvaging surface land after mineral extraction has ceased.

On specific parcels of land where extraction is carried on, obviously the configuration of the surface is affected as a result of the ditching in the case of strip or pit mining, the erection of tank dikes,

⁵² Salisbury, *Land Utilization in Creek County, Oklahoma*, op. cit.

slush ponds and pump holes where oil wells are drilled, the sinking of shafts and erection of crushing plants or collieries in lead, zinc, coal, and other shaft operations, and the disposal of waste and by-products such as brine or the accumulations of slag or tailing piles. All these cause actual alterations on the face of the landscape and remain to interfere with the reestablishment of surface utilization after extraction of minerals has been completed.

If the land has been leased and if the owner maintains his ownership in it, he has a problem of developing a use for the abandoned site. More often, perhaps, the operating company or the lessor allows the property to revert to the public for taxes, and then the public body has a problem of determining a use. For example, small abandoned quarries are often used simply as public dumps.

The question of alternative uses is particularly acute in the case of the strip-mining of coal, for the unsightly overburden banks present readily visible evidence of the surface despoliation which increases directly with the extent of extraction—a relationship which is nowhere near so direct in the case of shaft, well, or even pit operations. Considerable argument still wages over the possible uses of the spoil bank areas for pasturing, forestry, and recreation. Strip-coal operators insist that good forest stands will grow on the piles, and they present a case for using the ridges for parks and forests and the water-filled cuts for recreation and wildlife. (Ducks and geese are said to “look down with delight and tired wings upon these waters” in Indiana.)⁵³

⁵³ For the strippers' case, see: *The Story of Open Cut Coal Mining in Indiana*, Indiana Coal Producers Association, Terre Haute, 1940; and *The Open Cut Coal Mining Industry of Illinois*, Illinois Coal Strippers Assn., Chicago, 1939.

Partly because the establishment of new uses is thought to be dependent on having the land level, and partly because the height of the strip-coal banks makes them plainly visible eyesores, there is considerable debate over the need for and the economic feasibility of leveling these piles. On the one side it is held that leveling cannot be done because of the cost, and that desirable new uses can be introduced without leveling. On the other hand, it is suggested that, where agreement to level has been required before the mineral lands were sold, the reclamation work has been achieved without excessive cost.

The conservation problems are not limited, however, to the immediate lands actually used in mineral operations. Adjacent private lands are often affected in a direct physical way, and even lands lying at some distance may be subjected to damage. The Bureau of Mines finds that these problems are “. . . so acute in certain portions of the United States, particularly in agricultural areas that it is being treated as a long continuing research study.”⁵⁴

One of the most important sources of damage to lands in mineral areas is in the pollution of surface and subsurface waters.

“Mining waste in surface waters comes from three major sources: (1) Acid drainage and culm are produced by mines in the coal fields east of the Mississippi River, (2) brines are discharged from oil wells as in the mid-continent, Gulf coast, Michigan, and California fields, and (3) debris is produced by hydraulic metal mining operations in California.”⁵⁵

Literally millions of dollars have been spent on the oil-field brine disposal prob-

⁵⁴ Ludwig Schmidt and C. J. Wilhelm, *Disposal of Petroleum Wastes on Oil-Producing Properties*, R. I. 3394, U. S. Bureau of Mines.

⁵⁵ *Water Pollution in the United States*, National Resources Committee, 1939, p. 8.

lem and the national committee suggests that "at least \$100,000,000 would be required, and it is conceivable that the ultimate cost might be double this figure" to make a real attack on it.⁶⁶

The Oklahoma Planning and Resources Board has found in a detailed study of oil effluent damage that, "Damage caused by pollution . . . has forced 15 municipalities to spend over \$10,000,000 during the past 12 years for new water supplies." In further comment on physical land damage arising from subsurface extraction this agency also has stated,

"This does not take into consideration the millions of dollars accruing in damages to water supplies in smaller towns, commercial water supplies, private water wells, farm crops, livestock, fishing and recreation waters. . . . It has been found that approximately 2,000 miles of major streams and approximately 3,000 miles of tributary and smaller streams are polluted. . . ."⁶⁷

A number of direct and indirect human conflicts have arisen between the surface and subsurface users as a result of damages to land surface (including all types of water supplies) in proximity to the operating subsurface unit. In brief such damages are the result of (1) overflow of salt brine and oil or industrial effluent, (2) lowering of water table in strip-mine areas, (3) pollution of streams from shaft or strip mines, and (4) diffusion of detrimental fumes from smelters.

The legal intricacies are confused by the lack of uniformity between states and even court jurisdictions in statutes and decisions defining pollution and damage and responsibilities.⁶⁸

Summers has made an exhaustive study of this particular factor, with special reference to the migratory minerals. His treatise offers an opportunity to view the general problem through the eyes of an experienced observer who has many actual experiences from which to draw illustrations. Thus, his general summary of the legal aspects of damage to property arising from mine extraction briefly stated is,

"The production of salt water is often a necessary incident to the operation of a tract of land for oil and gas purposes. Crude oil often escapes from wells, tanks or open earthen storage. Waste . . . naturally drains to lower adjacent lands and find their way into natural water courses. Both salt water and oil are destructive to vegetation and poisonous to livestock. They may make land permanently unfit for agricultural purposes. Many cases have arisen wherein adjacent areas have sought legal and equitable remedies for actual or threatened injuries to land, streams, underground water supplies, crops, livestock and injuries to other property resulting from the flow of salt water, oil and other refuse onto their lands. . . . In a great majority of these cases the liability of the oil and gas operator for injuries to and upon adjacent lands has been held to be an absolute one upon the theory of nuisance and injurious agency doctrine. . . . Only in Texas is the liability of the oil operator made to depend upon his negligence. In that state . . . if a land owner's crops are destroyed, his cattle poisoned and his farm converted into a worthless salt marsh by the flow of salt water and oil over the surface, not in a natural water course, he can not recover damages for the injuries suffered unless he alleges and proves specific acts of negligence. . . . If he fails in these recommendations of pleading and proof, he is comforted only by the knowledge that the devastation was accomplished with due care."⁶⁹

⁶⁶ *Ibid.*, p. 47.

⁶⁷ *Report*, Water Resources Division, Oklahoma Planning and Resources Board, 1937-8.

⁶⁸ Summers, *op. cit.*, Vol. I, p. 147; Ark. Laws 1933, Act 234; Deering's Gen'l Laws of Calif., Vol. II, p. 2398, Act 4916; Kas. Gen'l Stats. 1935; La. Acts 1936,

Act 225; Mich. Pub. Acts 1937, Act 326, S.B. 179; Mich. Comp. Laws, Supp. 1934; Miss. Gen'l Laws 1932; N. Mex. Laws 1935, c. 72; 52 Okla. Stats. Ann.; Vernon's Tex. Civ. Stats. Ann., art. 6008.

⁶⁹ Summers, *op. cit.*, pp. 19-28.

Summary

It should be clear from this cursory review that, rather than segregating interests as between surface and subsurface land economics, further exploration of the relationship between the two is necessary. Where mineral resources are present or suspected, there are economic repercussions on every phase of surface problems. Although these effects vary with the stage of the exploitation cycle, the class of mineral resource, and the distance from actual production zones, certain tendencies appear to be subject to generalization.

The tremendous place that minerals already play in a modern economy is, as a whole, increasing, and it would be erroneous to imply that all extractive activities create intolerable conditions. It remains inescapable, however, that minerals are a stored, rather than a flow, resource; they are exhaustible and non-renewable. Furthermore, because of the concentrated values which these resources represent, there is a tendency to sacrifice a great deal in order to gain access to them. The resulting situation has widespread and significant implications for surface land ownership and utilization and often creates severe problems for society.

Land economists whose main interest has been in surface uses have an interest in the problems of mineral land economics and a definite responsibility, particularly with respect to the influences of subsurface resources on surface land economics.

Already a few beginning studies are under way, as has been indicated in this paper, and a considerable amount of observation and experience are available only in an informal way. Certainly

awareness of some of the questions raised in this paper is growing as is also a demand for a more adequate probing of them. In view of this expectation of the future development of the field, the authors have felt it worth while to attempt to set up a rough framework for some of the relationships upon which a good deal of difficult but highly necessary work is yet to be done.

A final word with respect to problems of reclamation and rehabilitation of areas where subsurface influences are felt returns us to the first categories of problems discussed: property titles and tenure. Government programs of land purchase for the purpose of rehabilitating these areas are known to be discouraged by the very fact that clouds on legal titles and the consequent difficulties of searching and abstracting may make the costs of a purchase program prohibitive. Within the complex problems found in areas under subsurface influence, then, can be found factors which in themselves tend to negate remedial action programs.

On the other hand, recent legislation in one state indicates the possibilities which are in sight for constructive attack on the type of problems discussed here. A Minnesota statute⁶⁰ now provides for the establishment of a resources and rehabilitation commissioner who is authorized to expend a certain percentage of the state's mining occupation tax for the development of remaining resources and the rehabilitation of residents in counties where minerals have been extracted. Such a piece of legislation indicates the pressure of the problems here discussed, the possibilities of public attack on them, and the responsibilities that will fall on land economists for understanding the problems and recommending policies.

⁶⁰ Minn. Laws, H. F. No. 948, c. 544.

"Navigable Waters" as a Legal Fiction

By HAROLD KELSO*

JURISDICTION over navigable waters and the non-navigable tributaries that affect their flow, the late Senator Charles S. Thomas of Colorado once whimsically suggested, may logically extend to "the ordinary surface or run-off waters, the clouds of heaven, the dew of the morning, the fogs that come in from the seas, and the melting snow on the mountains."¹ The Supreme Court has not yet sanctioned this doctrine, but some might argue that the concept of navigability is applied almost to "ordinary surface or run-off waters" when it is extended to the Rio Grande,² Kansas,³ Desplaines,⁴ Colorado,⁵ and New⁶ rivers, none of which carries any commercial freight.⁷ "The melting snows on the mountains," likewise, are not far from the Boston and New York water supply reservoirs which the Supreme Court permitted only so long as the War Department does not consider them to interfere with the flow of water in the navigable portions of the Connecticut⁸ and Delaware⁹ rivers.

In the seven Supreme Court decisions so far cited, at least eight different economic interests appear: navigation, irrigation, sand dredging, the taxing power of a state, hydroelectric genera-

tion, title to real estate, municipal water supply, and the control of low-water flow to dilute sewage and industrial waste. Each case involved a close definition of the term "navigable waters," and a different definition would have fundamentally changed the decision.

The Navigability Concept

This important term is not in the Constitution; it crept into constitutional law when the United States was already 35 years old, with the Supreme Court's decision that "commerce includes navigation."¹⁰ Thirty years after this decision, President Franklin Pierce pointed out that during the first generation of our history the only navigation aids provided by Congress had been lighthouses, beacons, buoys, and the stakage of channels, all presumably valuable primarily for ocean-going vessels.¹¹ Eliminating harbor improvements, only one canal and three river appropriations were made in these 35 years. Two of them were for public piers in the Delaware river below Philadelphia, useful alike to foreign and domestic commerce, and two of them were justified on military grounds.¹² Even the maintenance of channel mark-

in 1919. Some had not actually been navigated for generations; see decisions cited.

* *Conn. v. Mass.*, 282 U. S. 660, 666 (1931).

¹ *New Jersey v. New York*, 283 U. S. 336, 344 (1931).

² *Gibbons v. Ogden*, 9 Wheat. 1 (1824).

³ James D. Richardson, *Messages and Papers of the Presidents*, 5 at 263-4, U. S. 53d Cong., 2d Sess., House Misc. Doc. No. 210 (1896-8).

⁴ U. S. War Department, Chief of Engineers, *Examinations, Surveys and Appropriations for River and Harbor Improvements*, 76th Cong., 1st Sess., House Doc. No. 106 (1939), 868, 923 (Carondelet canal), 955 (Philadelphia to the Sea), 1155 (Thames river); compare *Annals of Congress*, 7th Cong., 1st Sess. (1802), p. 1328; same 10th Cong., 2d Sess. (1809), p. 1811; same, 16th Cong., 2d Sess. (1819), p. 1808.

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¹ Quoted by Jerome G. Kerwin, *Federal Water-Power Legislation* (New York: Columbia University Press, 1926), p. 75.

² *U. S. v. Rio Grande Dam and Irrig. Co.*, 174 U. S. 690 (1899).

³ *Wear v. Kansas*, 245 U. S. 154 (1917).

⁴ *Economy Light & Power Co. v. U. S.*, 256 U. S. 113 (1921).

⁵ *U. S. v. Utah*, 283 U. S. 64 (1931).

⁶ *U. S. v. Appalach. Power Co.*, 311 U. S. 377 (1940).

⁷ *Annual Report*, Chief of Engineers, United States Army, pt. 2, has not listed any of these streams since traffic data were segregated from cost reports, beginning

ers on ocean routes was not supported by the commerce clause, but rather as a necessary expense incidental to the collection of customs.¹³ Presidents Jefferson, Madison, and Monroe suggested that a constitutional amendment would be needed before Congress could lawfully appropriate money for "internal" improvements.¹⁴ Statesmen did arise to argue that the Federal Government, under its war and postal powers, could extend aid to a comprehensive system of inland waterways, but their views were not generally accepted.¹⁵

After the commerce clause was broadened by judicial empiricism to include navigation, almost annual appropriations were made for river improvement. The controversial question now became the delimitation of federal and state responsibilities for aids to navigation. The common law furnished the prevailing answer—only tidal streams were under federal jurisdiction. This test derived from an era when English harbors were unimproved, but ocean vessels could float into protected river channels at high tide.¹⁶ Thus "navigation" was still linked to foreign rather than domestic commerce.

Andrew Jackson set the precedent that improvements below a port of entry should be made by the Federal Government, all others by the states.¹⁷ Applied to modern conditions, that would mean that the Federal Government would im-

prove ship channels below our inland ports. Several of these, of course, are over a hundred miles from the open ocean.¹⁸ Congress then began to create "ports of entry" far inland, and to appropriate money to improve channels to these ports. Occasional presidential vetoes checked but did not suppress the practice. Franklin Pierce found it necessary to point out that when Jackson had adopted the rule, a port was a port,

"but if the distinction thus made rests upon the differences between foreign and domestic commerce it cannot be restricted to the bays, inlets and harbors of the oceans and lakes, because foreign commerce has already penetrated thousands of miles into the interior of the continent by means of our great rivers. . . ."

Pierce himself rejected Jackson's precedent.¹⁹ But his was the last important voice to be raised for a "states' rights" interpretation of navigability. In the 1880's, Congress made Atlanta and Indianapolis "ports of entry,"²⁰ but by that time new tests of federal jurisdiction had been devised.

In 1845 Congress had extended admiralty jurisdiction to vessels of 20-ton's burden and upward on any navigable water.²¹ In 1851 the Supreme Court extended admiralty jurisdiction to inland lakes and rivers, declaring them navigable waters.²² In 1852, Congress chartered a company to build a bridge over the Ohio river between Pennsylvania and Virginia (now West Virginia), and in 1855 the Supreme Court upheld the

in England (London: Kegan Paul, 1912), pp. 110, 126; compare *The Thomas Jefferson*, 10 Wheat. 428 (1825).

¹³ Richardson, *op. cit.*, vol. 2 at 638-9.

¹⁴ Baltimore, New Orleans, Philadelphia, Portland, and Sacramento are examples. See Roy S. MacElwee, *Ports and Terminal Facilities* (New York: McGraw-Hill, 1918), p. 13.

¹⁵ Richardson, *op. cit.*, vol. 5 at 266, 269.

¹⁶ 21 Stat. L. 173 as amended. See *Supplement to the Revised Statutes of the United States, 1874-1891*, 293-4.

¹⁷ Richardson, *op. cit.*, vol. 5 at 268.

¹⁸ *The Genessee Chief*, 12 How. 443.

¹³ Richardson, *op. cit.*, vol. 2 at 493, 509; for English common-law precedents see H. J. W. Coulson, Urquhart A. Forbes, and H. Stuart Moore, *The Law Relating to Waters, Sea, Tidal and Inland* (London: Sweet and Maxwell, 1924), 62-7, 577-8.

¹⁴ Richardson, *op. cit.*, vol. 1 at 379, 568, 576, 584-5 and vol. 2 at 142-83.

¹⁵ See Albert Gallatin, *Report on Roads and Canals* (1808), American State Papers, misc. vol. 1 at 724-921; John C. Calhoun, *Roads and Canals* (1819), American State Papers, misc. vol. 2 at 533-7.

¹⁶ Coulson and others, *op. cit.*, c. 2; Edwin A. Pratt, *A History of Inland Transportation and Communication*

validity of the charter.²³ In 1870, the Court delivered its famous definition:

"Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways of commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water. And they constitute navigable waters of the United States within the meaning of the acts of Congress, in contradistinction from the navigable waters of the States, when they form in their ordinary condition by themselves, or by uniting with other waters, a continued highway over which commerce is or may be carried on with other States or foreign countries . . ."²⁴

In 1876, the Supreme Court officially confirmed that the right to regulate navigation includes the right to improve navigable channels.²⁵ As the climax to this series of decisions, the Court held that admiralty jurisdiction extends to artificial canals, if they are public highways, even though they are entirely within the limits of one state.²⁶ Between Congress and the Supreme Court, federal jurisdiction had now been extended to every stream capable of floating a 20-ton cargo in interstate commerce. It did not embrace the Indian canoes until the twentieth century.

Before continuing an examination of the geographic extent of navigability, however, it is necessary to indicate its qualitative content.

Rationing a River

"A river is more than an amenity, it is a treasure," Mr. Justice Holmes once declared. "It offers a necessity of life that must be rationed among those who have power over it."²⁷ Mr. Justice Reed has said: "The concept of navigability embraces both public and private interests. It is not to be determined by a formula which fits every type of stream under all circumstances and at all times."²⁸

An idea of the variety of these public and private interests that must be served by the rationing process may be gained from the chronological record of Supreme Court decisions presented in Table I.

Balancing these complex interests almost forces reliance in some cases on strained interpretations or legal fictions that enable the courts to fit legal concepts to living facts.²⁹ But the legislative and administrative branches of government may also create fictions, as in the attitude of Congress toward "ports of entry" that has been discussed, or as in the Federal Power Commission's decision in the Appalachian Power Co. case that has been cited.³⁰

Transportation. Most obviously relevant to the commerce clause is the conflict between railways and waterways. Legal questions arise in this conflict chiefly in connection with joint rates and terminal connections, and here administrative or quasi-judicial assertions of authority have uniformly been upheld.³¹

The railroads' fight against waterways

²³ *Penn. v. Wheeling Bridge Co.*, 18 How. 421.

²⁴ *The Daniel Ball*, 10 Wall. 557, 563. The last sentence quoted clarifies *Jackson v. James*, 20 How. 296 (1857), which first extended admiralty law to intrastate channels.

²⁵ *South Carolina v. Georgia*, 93 U. S. 4. The right of a state to improve the navigability of its rivers had been upheld in *Withers v. Buckley*, 20 How. 84 (1857).

²⁶ *Ex parte Boyer*, 109 U. S. 629 (1884).

²⁷ *New Jersey v. New York*, *supra* n. 9 at 342 (1931).

²⁸ *U. S. v. Appalach. Power Co.*, *supra* n. 6 at 404 (1940).

²⁹ Roscoe Pound, *The Spirit of the Common Law* (Boston: Marshall Jones, 1921), c. 7, "Legal Empiricism."

³⁰ 1 Fed. Power Comm. *Decisions and Orders* 3 (1931); compare 311 U. S. 377 (1940).

³¹ *U. S. v. Traffic Assn.*, 242 U. S. 178 (1916); *Skinner and Eddy v. U. S.*, 249 U. S. 557 (1919); *U. S. v. N. Y. Central*, 272 U. S. 457 (1926); *C. R. I. & P. Ry. Co. v. U. S.*, 274 U. S. 29 (1927); *U. S. v. Ill. C. R.R.*, 291 U. S. 457 (1933); *Miss. Valley Barge Lines v. U. S.*, 292 U. S. 282 (1934).

is on grounds of policy as distinct from law. All costs considered, they argue, rail transportation is cheaper than inland navigation.³² Their services must be maintained through flood, drought, and blizzard, whereas the waterways (which

benefit only part of the population at best) are available only part of the year.³³ Their privately financed enterprises are heavily taxed and onerously regulated, whereas the water carriers are subsidized and almost free from regulation.³⁴

These arguments rest heavily on the

³² Bureau of Railway Economics, *An Economic Survey of Inland Waterway Transportation in the United States* (Washington, 1930). An analysis indicating that the inclusive cost of inland navigation may be less than that of rail transportation is given by Harold Kelso, "Waterways versus Railways," 31 *American Economic Review* 537-44 (1941).

³³ Association of American Railroads, *When the Rivers Freeze*, pamphlet (Washington, 1940).

³⁴ U. S. President's Committee ("Committee of Six") to Submit Recommendations upon the General Transportation Problem, *Report* (Washington, 1938). Water carriers have been regulated only with respect to

through routes and joint rates with railroads; a limited jurisdiction has now been given to the Interstate Commerce Commission over the port-to-port traffic of some carriers. See Stuart Daggett, *Principles of Inland Transportation*, 3d ed. (New York: Harper, 1941), pp. 817-41; A. L. Stein, "Federal Regulation of Water Carriers," 16 *Journal of Land & Public Utility Economics* 478-81 (1940); Ralph L. Dewey, "The Transportation Act of 1940," 31 *American Economic Review* 15-26 (1941); Robert W. Harbeson, "The Transportation Act of 1940," 17 *Journal of Land & Public Utility Economics* 291 at 297 (August, 1941).

TABLE I. LEGAL INTERESTS RELATED TO "NAVIGABLE WATERS"
IN DECISIONS OF THE UNITED STATES SUPREME COURT

Interest	Earliest Case*	U. S. Reports	Page	Year
State grant of steamboat monopoly	<i>Gibbons v. Ogden</i>	9 Wheat.	1	1824
Admiralty jurisdiction	<i>The Thomas Jefferson</i>	10 Wheat.	428	1825
Land drainage	<i>Willson v. Black Bird Creek Marsh Co.</i>	2 Pet.	245	1829
Title to bed of river	<i>Pollard v. Hagen</i>	3 How.	212	1845
Bridges	<i>Pa. v. Wheeling Bridge Co.</i>	13 How.	518	1851
Channel improvement	<i>Withers v. Buckley</i>	20 How.	84	1857
Pier construction	<i>Dutton v. Strong</i>	1 Black	23	1861
Title to riparian land	<i>Railroad Co. v. Schurmeir</i>	7 Wall.	272	1869
Federal license for vessels	<i>The Daniel Ball</i>	10 Wall.	557	1870
Damages to flooded land	<i>Pumpelly v. Green Bay Co.</i>	13 Wall.	166	1872
Fishways on dams	<i>Holyoke Co. v. Lyman</i>	15 Wall.	500	1873
Boom for saw-logs	<i>Atlee v. Packet Co.</i>	21 Wall.	389	1874
Wharfage charges	<i>Packet Co. v. Keokuk</i>	95	80	1877
Artificial canals	<i>Ex parte Boyer</i>	109	629	1884
Title to island	<i>Packer v. Bird</i>	137	661	1891
State regulation of fisheries	<i>Manchester v. Mass.</i>	139	240	1891
Water power	<i>Kaukauna Water Power Co. v. Green Bay and Miss. Canal Co.</i>	142	254	1891
Waterway tolls	<i>Monongahela Navig. Co. v. U.S.</i>	148	312	1893
Municipal water supply	<i>St. Anthony Falls Water Power Co. v. St. Paul Water Commissioners</i>	168	349	1899
Irrigation	<i>U. S. v. Rio Grande Dam Co.</i>	174	690	1899
Land grant	<i>Walsh v. Columbus R. R.</i>	176	469	1900
Flood control	<i>Bedford v. U. S.</i>	192	217	1904
Sewage disposal	<i>Missouri v. Illinois</i>	200	496	1906
Tunnel under river	<i>West Chicago Street R.R. Co. v. Chicago</i>	201	506	1906
Oyster cultivation	<i>Lewis Blue Point Oyster Co. v. Briggs</i>	229	82	1913
Sand dredging	<i>Archer v. Greenville Sand Co.</i>	233	60	1914
Oil strata under river	<i>Oklahoma v. Texas</i>	258	574	1922
Title to bed of drained lake	<i>U. S. v. Holt State Bank</i>	270	49	1926
Railroad river terminals	<i>U.S. v. New York Central R. R. Co.</i>	272	457	1926
Low-water control	<i>New Jersey v. New York</i>	283	336	1931
Munitions production	<i>Ashwander v. TVA</i>	297	288	1936
Taxation of floating property	<i>James v. Dravo Contracting Co.</i>	302	134	1937
Watershed development†	<i>U.S. v. Appalach. Power Co.</i>	311	377	1940

* The purpose of this table is not legal but historical, and the cases cited are not necessarily leading or governing cases now.

† *Obiter* at p. 426.

implication that the public purpose in improving a river is to provide cheap transportation. In this connection, the relevant consideration is that railroads provide nothing but transportation, whereas waterways have a multitude of auxiliary functions. It can easily be demonstrated that the "incidental purposes" are of prevailing importance in many river (and harbor) projects, although no agency short of a government commission, with adequate finances and wide authority to examine records, could arrive at a quantitative estimate of the value of waterway benefits other than navigation. The difficulty that would be involved in a definitive study is indicated by the fact that just one agency, the Board of Engineers for Rivers and Harbors, has prepared 4,959 examinations and surveys for river and harbor projects.³⁵

Flood Control. Until June, 1941, Supreme Court approval of federal flood control works was indirect, taking the form of a refusal to assess damages against the government for consequential burdens to riparian owners from levees and revetments.³⁶ The declaration of policy embodied in the Flood Control Act of 1936, however, cogently invoked the commerce clause:

"It is hereby recognized that destructive floods upon the rivers of the United States, upsetting orderly processes and causing loss of life and property, including the erosion of lands, and impairing and obstructing naviga-

tion, highways, railroads and other channels of commerce between the states, constitute a menace to public welfare". . . ³⁷

The Flood Control Act was upheld by the Supreme Court in a decision handed down June 2, 1941, involving the constitutionality of a federal reservoir on a non-navigable section of the Red river.³⁸

The legal philosophy here implied is quite modern. The earliest federal flood control legislation was a grant deeding swamp land in the public domain to Mississippi valley states, which were to use the proceeds from the sale of the land for drainage improvements and levees—this was in 1849. Thereafter the rivers and harbors bill was the cover for all flood control appropriations. Not until 1917 was any frank flood control legislation even introduced in Congress, and not until 1936 did Congress venture to authorize flood control projects on admittedly non-navigable streams.³⁹ Numerous "navigation" projects adopted before that time turn out on examination really to be flood control projects. Examples include the Arkansas river at Arkansas City and Tulsa,⁴⁰ the Savannah river at Augusta,⁴¹ sections of the Appomattox river,⁴² and of course, most important of all the lower Mississippi.⁴³

Allocating costs between flood control and navigation is a guessing game. "An honest and competent technician," says Gilbert F. White, "using the same basic data for a given protection scheme, can

³⁵ U. S. War Department, Chief of Engineers, *Annual Report, 1940*, 1 at 23. The number cited omits project documents prepared by army engineers before the establishment in 1902 of the Board of Engineers for Rivers and Harbors.

³⁶ *Bedford v. U. S.*, 192 U. S. 217 (1940); *Hughes v. U. S.*, 230 U. S. 24 (1913); *Cubbins v. Mississippi River Commission*, 241 U. S. 351 (1916). See also dictum of Mr. Justice Reed, *U. S. v. Appalach. Power Co.*, *supra* n.6, at 426.

³⁷ 33 U. S. C. A. Sup. 701a.

³⁸ *Oklahoma v. Atkinson Co.*, 61 Sup. Ct. 1050.

³⁹ Arthur De Witt Frank, *The Development of the Fed-*

eral Program of Flood Control on the Mississippi River (New York: Columbia University Press, 1930); U. S. War Department, Chief of Engineers, *Annual Report, 1936*, 1 at 3.

⁴⁰ U. S. War Department, *Examinations, etc.*, *supra* n. 12 at 383.

⁴¹ *Ibid.*, at 782.

⁴² *Ibid.*, at 376.

⁴³ U. S. War Department, Chief of Engineers, *Flood Control in the Mississippi Valley*, 70th Cong., 1st Sess., House Doc. No. 90 (1927); same, *Control of Floods in the Alluvial Valley of the Lower Mississippi River*, 71st Cong., 3d Sess., House Doc. No. 798 (1931).

in a large number of cases conclude either that protection is justified, or that it is unjustified, depending on the premises which are assumed at one or more of the several points at issue."⁴⁴ With reference to the Mississippi, the army engineers have suggested that revetment (lining and reenforcing banks), contraction, and dredging are all useful in the benefit of navigation, and may be charged to that account, but the engineers vaguely charge \$100,000,000 in one place and \$110,000,000 in another place in the same report.⁴⁵ But a revetment has two functions: "... to reduce the danger of attacks to the foundations of levees and their destruction by caving banks, thereby to further reduce the possibility of crevasses ..." and "... to assist in securing and holding the low-water channels needed for carrying the commerce of the valley."⁴⁶ Local governments, not directly interested in improving the navigability of the Mississippi, have frequently constructed revetments for flood protection only.⁴⁷ Where contraction is necessary to channel stabilization, it not only prevents flood damage to adjoining property, but also precludes the necessity of moving expensive levees.⁴⁸ Dredging, especially at cut-offs, may speed water past expensive land in order to pile it on waste land downstream.⁴⁹

These criticisms are not aimed at the integrity of the army engineers. If a cost allocation must be made between navigation and flood control, the procedure suggested may be the least objectionable

one available. The purpose of the present discussion is simply to emphasize the inextricable mingling of functions in waterway projects.

This purpose would not be served without adding that navigation improvements may sometimes aggravate the flood problem. Backwater above a navigation dam may increase local flood damage, as at Waterford, N. Y.⁵⁰ Straightening a channel may rush more water more quickly to some downstream bottleneck where floods accumulate.

Hydroelectric Power. If either state or federal governments improve a river for navigation, they have the right of control and disposal over incidental water power created. Permission granted to private individuals for use of such power may be conditional, and the restrictions need not be directly related to navigation. Water power, existing or potential, is not inherent in riparian owners but is subject to the paramount right of navigation. A power dam may not be erected on a navigable river of the United States without federal permission. If the government sells surplus power generated in connection with navigation, it may acquire transmission lines for delivery of that power. Licenses to private corporations for hydroelectric plants on navigable streams may include a provision for acquisition of the plant by the United States at the end of the license period.⁵¹

The Federal Power Commission may also control power generation on non-navigable streams when it finds that the interests of interstate or foreign com-

⁴⁴ "The Limit of Economic Justification for Flood Protection," 12 *Journal of Land & Public Utility Economics* 133 at 147 (1936).

⁴⁵ U. S. War Department, *Control of Floods*, etc., *supra* n. 42 at 4, 11.

⁴⁶ U. S. War Department, *Flood Control*, etc., *supra* n. 42 at 7.

⁴⁷ Frank, *op. cit.*, at 154.

⁴⁸ U. S. War Department, *op. cit.*, at 30.

⁴⁹ Frank, *op. cit.*, at 61-2, 104.

⁵⁰ U. S. War Department, Chief of Engineers, *Hudson and Mohawk Rivers*, N. Y., 75th Cong., 3d Sess., House Doc. No. 620 (1938), 12.

⁵¹ *Kaukauna Water Power Co. v. Green Bay Canal Co.*, *supra* Table I; *Green Bay Canal Co. v. Patten Paper Co.*, 172 U. S. 58 (1898); *U. S. v. Chandler-Dunbar Co.*, 229 U. S. 53 (1913); *Economy Light Co. v. U. S.*, *supra* n. 4; *Ashwander v. TVA*, *supra* Table I; *U. S. v. Appalach. Power Co.*, *supra* n. 6.

merce would be affected. This provision has not been passed on by the Supreme Court.⁵²

The first congressional authorization for a water power development in a navigable stream came in 1884. From that time to 1920 every new project required a separate act of Congress. Theodore Roosevelt and William Howard Taft both vetoed bills for power projects, because (among other reasons) they carried no provision for payment to the Government by the licensee for the privilege of using navigable waters. The first general licensing provisions for hydroelectric power were introduced in the act setting up the Federal Power Commission in 1920.⁵³

As of June 30, 1940, there were 47 hydroelectric "projects under major license" by the Federal Power Commission on the basis that the plants affect navigable waters. Only eight of these, plus four "projects under minor license," made any payment to the Federal Government for use of water resources. These license payments, however, have grown from \$205,280.50 in 1935 (the first year for which comparable data are given) to \$346,756.81 in 1939.⁵⁴

A power project may aid navigation in three ways: by the creation of a slack-water pool above a dam, by the construction of a canal or lockage at a natural waterfall, or by adding to the low-water supply below the dam in time of

drought. Presumably the 39 hydro plants that do not pay for their right to use navigable waters are aiding navigation in one or more of these ways. Only a miracle, however, could so guide the Federal Power Commission that the balance between navigation and power functions would be accurate except within very broad limits, whether the utility does or does not pay a special fee for water use. And if allocation to power is too low, the supposed federal costs of navigation are overstated; conversely, if it is too high the utilities' customers are paying a hidden tax to support the waterways.

Similar reasoning applies to the conflict of purposes in government-owned projects, which has received so much recent attention as to need only passing mention here.⁵⁵ Is the act authorizing the Bonneville dam "for the purpose of improving navigation on the Columbia river, and for other purposes incidental thereto . . ." as Congress says; or is it " . . . to encourage the widest possible use of all electric energy that can be generated at the Bonneville dam," as Secretary Ickes asserts?⁵⁶ Both managerial and marketing policy would seem to require that an industry producing joint products should know what part of its output is primary and what part is incidental.

Irrigation. Few irrigation projects are on navigable streams.⁵⁷ The Supreme Court has held, however, that any diver-

⁵² 16 U. S. C. A. 817. See *Carolina Aluminum Co.*, 1 F. P. C. *Decisions and Orders* 495 (1937). For possible precedents involving irrigation and flood control, see *U. S. v. Rio Grande Dam Co.*, *supra* n. 2; *Oklahoma v. Atkinson Co.*, *supra* n. 38.

⁵³ Kerwin, *op. cit.*; Frank R. McNinch, "The Evolution of Federal Control of Electric Power," 12 *Journal of Land & Public Utility Economics* 111-9 (1936).

⁵⁴ U. S. Federal Power Commission, *Annual Report, 1940*, 109-12, 131-9, 143. Projects are also licensed on the basis that they affect government lands, and fees are charged for the use of Indian lands, the use of public lands, and administrative expense.

⁵⁵ The issues relevant to this discussion are highlighted by Bayard O. Wheeler, "The Production and Distribution of Bonneville Power," 14 *Journal of Land & Public Utility Economics* 359-69 (1938); Martin G. Glaeser, "Those Joint TVA Costs," 24 *Public Utilities Fortnightly* 259-69 (1939); Herbert Corey, "Quit Hanging Rainbows over the Tennessee Mountains," 17 *Public Utilities Fortnightly* 803-11 (1936).

⁵⁶ 16 U. S. C. A. Sup. 832; *U. S. Government Manual*, March, 1941, p. 280.

⁵⁷ See U. S. National Resources Board, *Report on Land Planning* (1936), 4 at 26-34.

sion of water from the non-navigable tributaries of a navigable river is subject to the right of the United States to improve navigation. By creating a navigable pool for 75 miles above the dam and lessening silting below the dam, Boulder dam came under the federal power to improve navigable waters. Because the Colorado river is legally navigable, the Department of the Interior could not proceed with Parker Dam to improve irrigation, until it had obtained a survey from the War Department.⁵⁸

No overstatement of navigation costs on the Rio Grande and Colorado rivers is possible, since in current cost reports the army engineers ignore the fiction of their navigability by ignoring the rivers.⁵⁹ Irrigation and navigation are mingled, however, on several western rivers. The Sacramento-San Joaquin and upper Missouri projects will be taken as representative. On the former, irrigation upstream has added enormously to the cost of maintaining a navigable channel downstream. There is little question that the Federal Government constitutionally could restrain irrigation in California's Central Valley, but it chooses to recognize the truly paramount importance of the water use which is less firmly established in the law.⁶⁰ Fort Peck Dam was built officially "for the purpose of improving navigation on the Missouri river, and for other purposes incidental

thereto . . .," but the project document shows fear that irrigation above Fort Peck might be hampered by insistence on flow maintenance for navigation downstream, as one justification for the dam.⁶¹

Land Drainage. Subject only to the paramount power of Congress over navigation, a state may obstruct or improve a navigable stream to drain its lands.⁶² There is no obvious power in Congress to drain lands, but it is apparent that the "navigation" canals in the Florida Everglades, which have cost the Federal Government 21 million dollars, are designed primarily for drainage and that navigation is the truly incidental function.⁶³ Other waterway projects also are probably aids to land drainage.

Obstructions to Navigation. The bed of a navigable river belongs to the state within whose boundaries it lies; state laws are conclusive as to the rights of riparian owners. Because of the paramount right of navigation, however, structures in or over navigable water must have the assent of both federal and state governments, and this assent may be conditional. If the needs of navigation change, assent may be withdrawn or the structures may be ordered altered at the owners' expense. Liability for failure to comply is both civil and criminal. There is no government liability for consequential damages to riparian owners from federal improvement of a natural stream. Dams which completely flood ri-

⁵⁸ *U. S. v. Rio Grande Dam Co.*, *supra* n. 2; *Arizona v. California*, 283 U. S. 423 (1931); *U. S. v. Arizona*, 295 U. S. 174 (1935).

⁵⁹ The last appropriation for the Colorado river in a rivers and harbors bill was in 1892, for flood protection at Yuma. The Rio Grande was improved at San Benito for flood control under the NRA. Both projects are now classified as "inactive." (U. S. War Department, *Examinations*, etc., *supra* n. 12 at 451, 734.)

⁶⁰ U. S. War Department, Chief of Engineers, *Sacramento and San Joaquin Rivers*, Calif., 69th Cong., 1st Sess., House Doc. No. 123 (1925); U. S. Federal Power Commission, *Uses of the American River*, Calif. (1927), 51-4.

⁶¹ 16 U. S. C. A. Sup. 833; U. S. War Dept., Chief of

Engineers, *Missouri River*, 73rd Cong., 2d Sess., House Doc. No. 238 (1934); compare U. S. National Resources Committee, *Public Works Planning*, 75th Cong., 1st Sess., House Doc. No. 140 (1937), 89; U. S. President's Committee on Water Flow, *Development of the Rivers of the United States*, 73d Cong., 2nd Sess., House Doc. No. 395 (1934), 6.

⁶² *Willson v. Black Bird Creek Marsh Co.*, 2 Pet. 245 (1829); *Leovy v. U. S.*, 177 U. S. 621 (1900); *Manigault v. Springs*, 199 U. S. 473 (1905).

⁶³ U. S. War Department, Chief of Engineers, *Caloosahatchie River and Lake Okeechobee Drainage Areas*, Fla., 71st Cong., 2d Sess., Senate Doc. No. 115 (1930); same, *Annual Report*, 1940, 1 at 707-19; 2 at 656-9.

parian land, or subject it to recurrent but inevitable flooding, do create liability for the government. On the other hand, direct benefits to owners of riparian land may be deducted in partial condemnation proceedings for river and harbor improvements.⁶⁴

No generalization seems possible as to the incidence of burden and benefit in these principles. The canalization of rivers may increase the difficulty of draining bottom lands,⁶⁵ and the cost of altering bridges may be one of the major costs—falling on private owners and local governments in most cases—in a waterway project.⁶⁶ On the other hand, evidence seems conclusive that real estate values along an improved waterway usually go up, and real estate boards are frequently active promoters of river and harbor improvements.⁶⁷ Even before passage of any general flood control legislation, protecting city water fronts from erosion and training currents at bridges were considered legitimate “aids to navigation,” sometimes justifying the expenditure of millions of dollars.⁶⁸ Finally, at least one “river and harbor” project, the “waterway” from Delaware bay to Chincoteague bay, is now entirely confined to bridge maintenance.⁶⁹

Stream Pollution, Water Supply. Anglo-

⁶⁴ See cases cited in *New Jersey v. Sargent*, 269 U. S. 328, 337 (1926); *U. S. v. River Rouge Improvement Co.*, 269 U. S. 411, 418-9 (1926); *James v. Dravo*, 302 U. S. 134, 140 (1937).

⁶⁵ U. S. Congress, House Committee on Rivers and Harbors, *Hearings* . . . Jan. 30, 1935, 1-37.

⁶⁶ An extreme case is found in U. S. War Department, Chief of Engineers, *Intracoastal Waterway* . . . , 75th Cong., 1st Sess., House Doc. No. 291 (1937), 3, 36, where total federal costs for the section of the Gulf intracoastal canal between Apalachicola bay and Withlacoochee river were estimated at \$480,000, and the cost of altering bridges at \$451,500.

⁶⁷ Walker Parker, “Opening of the New Orleans Inner Harbor Navigation Canal,” 28 *American City* at 500 (1923); U. S. War Department, *Flood Control*, etc., *supra* n. 9; U. S. Congress, House Special Committee, *Government Competition with Private Enterprise*, 72d Cong., 2d Sess., House Rep. No. 1985 (1933), 197.

American law is influenced by the fact that the first works of river improvement in England were undertaken by royal “commissions on sewers.”⁷⁰ So far as state authority is concerned, “drinking and other domestic purposes are the highest uses of water.”⁷¹ But there is no recognized federal power to furnish clean drinking water except such as arises out of the fact that stream pollution may increase damage to hulls of vessels and airborne disease to people engaged in commerce.⁷² So the United States Public Health Service studies and investigates pollution of navigable streams, but limits to pollution are prescribed by the Secretary of War.⁷³ Maintenance of stream regimens undoubtedly aids “disposal by dilution” of sewage and industrial waste at many points in the United States, especially in times of low water. Statistical data are completely lacking for an evaluation of this function. In the only project which gives official standing to an allied purpose, that of controlling the waste from hydraulic mining, the army engineers have asserted that “the interests of navigation, debris control and flood control in the case of this [Sacramento] river are so inseparably connected that it is thought that they should be considered as one project.”⁷⁴

Forestation. As a method of influencing

⁶⁸ U. S. War Department, Chief of Engineers, *Annual Report*, 1915, 2 at 1893-4; same, *Missouri River*, *supra* n. 61 at 39.

⁶⁹ U. S. War Department, *Examinations*, etc., *supra* n. 12 at 474.

⁷⁰ T. S. Willan, *River Navigation in England, 1600-1750* (London: Oxford University Press, 1936), 16 ff.

⁷¹ *Connecticut v. Massachusetts*, *supra* n. 8 at 673 (1931). See also *St. Anthony Falls Water Power Co. v. St. Paul*, *supra* Table I; *New Jersey v. New York*, *supra* n. 9.

⁷² *New York v. New Jersey*, 256 U. S. 296 (1921).

⁷³ 42 U. S. C. A. 7, 33 U. S. C. A. 407, 419; compare U. S. War Department, Chief of Engineers, *Annual Report*, 1940, 1 at 12; 1938, 1 at 7.

⁷⁴ U. S. War Department, California Debris Commission, *Flood Control—Sacramento and San Joaquin River Systems, California*, 62d Cong., 1st Sess., House Doc. No. 81 (1911).

stream flow, forestation or reforestation is not in official favor. Its effects are considered "indefinite and indeterminate" and government aid to forests is advocated by the army engineers "for its own sake" and "quite independently of river improvement work."⁷⁵ River and harbor improvements, nevertheless, do sometimes include substantial amounts of forestation for bank protection.⁷⁶

Fisheries. Regulation of fisheries by state as well as federal governments has been upheld by the Supreme Court with the ubiquitous qualification that fishing is subject to the paramount right of navigation.⁷⁷ The requirement that fishways be constructed on dams for navigation or power sometimes adds to the costs of these functions,⁷⁸ whether privately or publicly financed.

Recreation. As of November 1, 1940, there were 313,667 small motorboats licensed to use the navigable waters of the United States.⁷⁹ Vessels large enough to be used commercially, but actually used for recreation, are not separately reported. On one waterway, the Long Island intracoastal, \$1,048,700 was spent in direct servicing of pleasure boats in 1935; an estimated \$1,000,000 was spent locally for supplies; another \$1,000,000 (more or less) was spent in chartering boats—during the year 250,000 people were carried to recreational fishing grounds by the project. Estimated costs of the waterway, including interest and

50-year amortization, are \$32,000 a year. Should this all be allocated to the 163,497 tons of commercial traffic which used the waterway that year?⁸⁰ Probably few duplicates of this example exist, but recreational boating and non-commercial fishing are important on many federally improved waterways.⁸¹

"Pump-Priming." No elaborate discussion is here necessary about the merits of federal expenditures to prevent, relieve, or overcome depressions. Whether or not the spending was wise, the fact is that \$520,509,710.43 has been appropriated for river and harbor improvements under the NIRA, PWA, and Emergency Relief acts, to June 30, 1939.⁸² Probably some part of these funds should be allocated to general "public welfare."

"Preparedness." River and harbor projects were originally assigned to the army engineers on the suggestion of John C. Calhoun, when he was Secretary of War, "to keep them fit and trained for war in time of peace," as well as to improve the service of supply in war time.⁸³ All transportation facilities have military value, but subsidization of some extra capacity might be allocated to defense rather than to commerce, and a part of the waterways costs might justly be charged to education for defense.

Steps Ahead

The constitutional concept of "navigable waters" has evolved from non-existence to the basis of jurisdiction over

⁷⁵ U. S. War Department, *Control of Floods*, etc., *supra* n. 43 at 5; U. S. President's Committee on Water Flow, *op. cit.* at 11-12; compare U. S. Department of Agriculture, Forest Service, *A National Plan for American Forestry*, 1 at 298-461, 2 at 1509-36, 73d Cong., 1st Sess., Senate Doc. No. 12 (1933).

⁷⁶ U. S. War Department, Chief of Engineers, *Annual Report*, 1939, 1 at 1364.

⁷⁷ *Holyoke Co. v. Lyman*, 15 Wall. 500 (1873); *Manchester v. Massachusetts*, 139 U. S. 240 (1891); *Lewis Blue Point Oyster Co. v. Briggs*, 227 U. S. 82 (1913); compare *Cleland Van Dresser*, "Whose River Is It?" 45 *American Forests* 258 (1939).

⁷⁸ 33 U. S. C. A. 608.

⁷⁹ U. S. Department of Commerce, Bureau of Marine Inspection and Navigation, *Bulletin*, v. 5, no. 5, p. 13 (November, 1940).

⁸⁰ U. S. 75th Cong., 1st Sess., House Doc. No. 181 (1937).

⁸¹ U. S. War Department, Chief of Engineers, *Annual Report*, 1940, 2 at 1469-97.

⁸² U. S. War Department, Chief of Engineers, *Annual Report*, 1940, 1 at 11.

⁸³ See n. 15 *supra*.

mountain rapids and desert rivulets. Since it was called into being, it has grown from a power solely over vessels to authority over many vital economic functions. Given the social will, what latent content does it still have?

Will there be administrative or legislative desire further to restrict or enlarge riparian rights? Then (perhaps by a series of transitional cases) the courts can build on the Economy Light & Power Co. decision:

"The Desplaines river, after being of practical service as a highway of commerce for a century and a half, fell into disuse, partly through changes in the course of trade or methods of navigation, or changes in its own condition, partly as the result of artificial obstructions. In consequence, it has been out of use for a hundred years; but a hundred years is a brief space in the life of a nation; improvements in the methods of water transportation or increased cost in other methods of transportation may restore the usefulness of this stream; it is within the power of Congress to improve it at public expense; and *it is not difficult to believe that many other streams are in like condition and require only the exertion of federal control to make them again important avenues of commerce among the states.*"⁸⁴

If no cargo has ever been floated on the stream, the courts will have another guidepost in the Appalachian Power decision:

"A waterway which by reasonable improvement can be made available for navigation in interstate commerce is a navigable water of the United States, provided that there be a balance between cost and need at a time when the improvement would be useful."⁸⁵

Will there be administrative or legislative desire to restrict or enlarge the qualitative content of its power over navigable waters? In his dictum in the

Appalachian Power case, Mr. Justice Reed has pointed the way:

"In our view, it cannot properly be said that the constitutional power of the United States over its waters is limited to control for navigation. . . . Flood protection, watershed development, recovery of the cost of the improvement through utilization of power are likewise parts of commerce control."⁸⁶

The possible content of "flood protection, watershed development" requires reference to lay authorities:

"The cultivation of the soil largely increases the amount of sediment entering our streams; the direction of the furrow markedly affects the amount of rain water that flows from its surface, and every ditch or sub-surface drain promotes a more rapid flow into our rivers during floods and possibly affects their discharge during low water."⁸⁷

How long will a statute-by-statute, case-by-case evolution take to reach the requirement that every farmer must annually obtain the army engineers' approval to a contour map of his proposed season's cultivation? Nor will the urbanite escape:

"Singly or in combination, zoning, building regulations, and subdivision regulations are fruitful devices for promoting the effective use of flood-plain lands. Sooner or later, comprehensive programs which seek to reduce flood damages may be expected to include such regulation as well as the traditional measures of flood control and flood protection."⁸⁸

The antiquarian of the twenty-first century, reading the literature of the twentieth, may chuckle at the quaint conservatism of this suggestion.

Practical Conclusions

In less imaginative vein, certain statements may be advanced with respect to

⁸⁴ 256 U. S. 113 at 124 (1921), italics added.

⁸⁵ 311 U. S. 377, syllabus (1940).

⁸⁶ 311 U. S. 377 at 426 (1940).

⁸⁷ Col. C. McD. Townsend, *Elements of Flood Control*,

U. S. 63d Cong., 1st Sess., House Doc. No. 51 (1913).

⁸⁸ Gilbert F. White, "State Regulation of Flood-Plain Use," 16 *Journal of Land & Public Utility Economics* 352 (1940).

the social implications of the "navigable waters" concept. These conclusions are not novel,⁸⁹ but new cogency is given them by the historical and analytical material that has been presented here.

1. Water resources, in our increasingly complex civilization, have a wide variety of uses.

2. Many of the services or commodities created by improving waterways are not marketable; hence, to obtain the maximum utilization of water resources for such multiple purposes, it is necessary to use public funds.

3. Because of our written constitution, and to silence adversely affected interests, use of public funds for multi-purpose waterway improvements has been legally justified by stretching the original concept of navigability to fictional scope.

4. Ethical justification for the use of such legal fictions hinges upon the social benefits derivable from the maximum utilization of water resources for varied

purposes, and these cannot be measured by the principles of minimum cost for transportation, hydroelectric power, or other single purposes.

These developments raise additional questions; for example:

1. Can private corporations successfully compete with governmental enterprise in building and operating multipurpose waterway projects?

2. If governmental policy is to make its vendible services pay their way by charging for them, must the cost-accounting conventions used conform to the legal rather than to the actual purposes of "navigation" projects?

3. When maximum utilization of water resources seems to be in the public interest but also seems likely to impinge on vested private interests, might the government not justly adopt, through its legislative and administrative arms, a more liberal policy in payment of damages than is required by strict adherence to judicial decisions?

⁸⁹ See Martin G. Glaeser, "The Yardstick Once More," 24 *Public Utilities Fortnightly* 733-9 (1939); Horace M. Gray, "Allocation of Joint Costs in Multiple-Purpose Projects," 25 *American Economic Review* 224-35 (1935); L. C. Gray, "Economic Possibilities of Con-

servation," 27 *Quarterly Journal of Economics* 497-519 (1913); John C. Page, "The Multiple-Purpose Project," 29 *Reclamation Era* 93-5 (1939). Not all of the conclusions stated, of course, are advanced by all these writers

Rent Control

By JAMES C. DOWNS, JR.*

AT THE present time there is before the Congress a bill to enable the government to control prices during the national emergency. One of the proposals of the bill is that rentals shall be regulated in those areas of the country and its possessions wherein the administrators of price control shall have declared a rental emergency.

As it is now being considered, rent control would work something like this: September 1, 1940 would be declared the date on which the forces of the emergency (at least in so far as rentals are concerned) began to take hold. Landlords in rental emergency areas would be prohibited from raising rentals more than 10% above the rate which prevailed on September 1, 1940. The law would be effective only during the period of the national emergency, would apply only to quarters completed on the date of the law's enactment, and would apply only to rented residential quarters on which the rental was less than \$15.00 per room.

These are the simple facts of the rental control situation on the date this is written. It would seem, therefore, that an article at this time on the subject of rent control might well concern itself with these general propositions:

1. Is there a need for rent control?
2. Is the proposed law a fair and desirable method?
3. What effect will rent control have on our urban land economy?

Discussing these questions in their order, we first take up the need for

rent control. Certainly many points of view could, objectively, be put forth either for or against the need. It could be said that the control of rentals would in no sense cure a housing emergency; that it would arbitrarily deny citizens their age-old right to bid for what they wanted; that at present rental rates the differential between prevailing rentals and those necessary to support new construction would be too great and therefore the occupant of new housing (exempt from the law) would be the victim of discrimination. From another point of view it could be said that the shortage caused by heavy defense activity in small communities places thousands of families at a social, as well as an economic, disadvantage through no fault of their own; that spirited bidding for housing would throw consumers' budgets out of balance and hence disrupt community and national economy; that profits from the ownership of real estate should not be fattened by taking advantage of the nation's defense workers.

Although there is something to be said in favor of laissez faire as related to rental markets, it appears that there is real need for at least temporary rent control in many of the nation's major defense centers. For example, let us examine the case of a policeman or a school teacher or a railroad conductor who lives happily with his family in a rented home in Pensacola, Florida. Suddenly hundreds of families are thrown into the community as a result of naval training, shipbuilding, construction, and related defense activities. The policeman, teacher, or conductor—

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whichever the case may be—suddenly receives a notice to move because another family has bid an outlandish rate for the home. The tenant has one of two alternatives. Either he must bid more for the house or move to inferior and smaller quarters. If he bids more for the home, it may be at the expense of dropping insurance (we know he won't give up his car), cutting food budgets, etc. If he moves to inferior quarters, it may result in impairment of his and his family's happiness. In any event, here is a citizen who is being forced to make a contribution to national defense out of proportion to that of his fellow Americans, and whose family will suffer hardships because they were unfortunate enough to live in a town which was selected as the site of government defense activity. Because of this fact, even most real estate operators agree that some form of rental control is desirable for those communities which can properly be classified as areas of rental emergency.

Now as to whether or not the proposed law is a fair and equitable method of controlling rentals, these observations would seem to be in order:

1. The selection of September 1, 1940, as a date on which fair rentals were presumed to exist leaves a great deal to be desired from several points of view. In some portions of the country rental recovery from the lows of the depression had been much more rapid than in others. In Detroit, for example, the great automobile production and wage spurt in 1937 had resulted in rentals which compared much more favorably with the 1926 level than did those in Chicago. It would seem that any date applied to the rented quarters of the country as a whole would encounter a similar lack of equity as between areas.

One must concede, however, in this

connection that the present law could be operated fairly as between such areas by invoking its operation in areas like Detroit almost at once and delaying the declaration of an emergency in less fortunate areas until they have had an opportunity to gain a proportionate increase. Here again, however, one would run into the inflexibility of a specific date, an obstacle which could only be surmounted by allowing greater discretion to the administrators.

Students of rental rates will concede that on September 1, 1940, in certain instances, rentals were already at profiteer levels for certain classes of consumers. This applies especially to those portions of our northern cities reserved to colored population. In this instance the law tends to crystallize an abuse rather than to correct a forthcoming inequality.

2. The selection of a rental rate of \$15.00 per room as the ceiling for rent control is likewise inequitable from the point of view of the differences in rentals in various sections of the country. In some communities in the South, a rental of \$15.00 per room is more than is paid by families with the highest incomes, whereas in certain of our major northern cities \$15.00 per room is less than is paid by lower income families (who may live four in a room).

Inasmuch as the operation of price control will require machinery of great size and scope it would appear desirable for the price control administration to set up zones of operation. These zones could easily be selected on the basis of their respective price levels. Through the operation of these zone organizations, closer contact could be maintained with actual conditions prevailing in various communities. Thus, rental emergency regulations could be lifted as soon as construction in such areas had

caught up with demand and as soon as the dislocation between consumer families and available quarters had been corrected.

It is to be presumed that the original animus of price control was the public's desire that no individual or corporation should profit unduly from the nation's defense effort. If this is true, then it should be assumed that no individual rental emergency could last longer than the national emergency itself and that all forms of rental control now adopted should terminate whenever the general emergency is declared to be concluded.

A further presumption is that coincidental with rental control, other forms of price control will be instituted which will keep residential real estate at parity with other enterprises in the matter of profits. This is an assumption, however, not confirmed in the law itself. The danger exists, therefore, that the adoption of specific rates related to specific dates will work a very serious hardship upon real estate if taxes, wages, supplies, and materials are allowed to increase out of proportion to the fixed rentals. Certainly the law itself should contemplate sufficient administrative flexibility to prevent our becoming victims of the forces which wrecked French real estate as a result of price control.

The question of what rent control will do to our urban real estate economy is greatly dependent upon the law as finally enacted and more especially on the related price control phases of the law. At the present time we are not able to measure accurately the dislocations of the defense effort. Certainly some forms of enterprise will suffer materially during the next few years. It also appears definite that certain groups of consumers in the middle classes will face serious readjustments to these dislocations. The

operation of the new tax regulations will see wholesale shifts in our housing consumer pattern. The impending step-up of defense activity will unquestionably result in greater shortages of materials for the production of housing. As to how these factors will operate for or against the conditions now prevailing in real estate, one guess is as good as another. However, certain pertinent facts can be recited. They are:

1. The application of rent control will seriously hamper real estate sales of houses for which the rental value is below the level of \$15.00 per room. During the past several years thousands of homes have been sold to their occupants because the tenant feared inflation, because purchase of the home was the only manner in which he might insure himself against rent gouging. After the law becomes operative, these worries will vanish from the tenant's mind.

Whereas one might question the importance of real estate sales of this kind, it must be remembered that our financial institutions still have millions in real estate to be liquidated. Although we appreciate that the tenant can assure himself of greater security and a better standard of maintenance through home ownership, the passage of the rent control law will rob real estate salesmen of their most effective argument.

2. Rent control will unquestionably lower the standards of maintenance and operation in rented quarters. In a free real estate market, landlords are forced to compete for tenants not alone on the value of the space for rent, but also on the character of its maintenance. No government agency can be set up which can concern itself with the details of tenants' decorating, plumbing, and public spaces. The landlord, whose rentals will be limited to a fixed rate,

will undoubtedly seek to widen his margin of profits through reduced expenses. Thus urban property, which is just beginning to be restored to good physical condition after the long starvation period of the depression, will again be allowed to deteriorate physically. The atrophy of employment of building trades which are used to maintain these buildings will be added to the other problems of the construction industry which have been brought about by the defense program.

3. Rent control will not in itself act as a serious deterrent to construction if building costs are held in line through the operation of other price controls. Very little of the nation's building has been done on a gamble that rents will go up after the project has been completed. The normal procedure is for heavy building activity to *follow* rent increases rather than to anticipate them. During the past five years rentals in the typical American city have been held down by the easy availability of supply of new houses. Only the stoppage of this construction would have resulted in any material increase in rent levels.

4. In the event it is possible to continue to get materials essential to the

completion of houses in the less-than-\$6,000 class, rent control legislation will operate greatly to accelerate decentralization. Tenants in city apartments and homes, whose rentals are fixed by law, will certainly stay in their present quarters in greater proportions than at present. New residents in the communities will be forced to take up quarters in newly constructed housing. (We assume that areas in which there is a housing emergency will also be areas of shortage of dwelling units.) In order to get land cheap enough to enable the builder to use most of his money for the house itself, he will be forced to the peripheral areas of the cities and their suburbs.

A great deal has been written about the rent control efforts made by various groups in the 1917-18 period of World War I. From a practical point of view, rent control in that period was not broad enough or effective enough to give a real background for any deductions as to the effects of the current legislation. Moreover, the conditions which prevail today are so vastly different from those which prevailed during the last war that there is little chance of duplicate experience.

Some Observations on the Relation of Farm Land Tenure to Soil Erosion and Depletion*

By OTIS T. OSGOOD†

THE increased attention that is being given to problems of farm land tenure and to methods of decreasing the rate of soil exhaustion, together with the growing belief that there is a very close and direct relation between the two,¹ raises the question as to just what are the relationships involved.

Much material has been advanced to support the commonly accepted idea that a tenancy status is much more conducive to exploitation of land resources than is owner-operatorship.

The thesis of this paper is that both the methods of comparison and the general applicability of the interpretation of results of many of the comparisons that have been made between owner and tenant groups must be subjected to careful review. In general, it is proposed that more thought be given to the qualifications and limitations of such comparisons and that more effort should be made to eliminate from these comparisons influences other than tenure.

Limitations of Comparisons of Farming Practices on Owner and Tenant Farms

In undertaking a comparison of farming practices of selected owner and

tenant groups for the purpose of estimating effects of ownership and tenancy on soil erosion and depletion, the first consideration should be to see that the comparison is made under as nearly uniform conditions as possible; that is, farms included should be in the same type-of-farming area and similar in size, soil, topography, market opportunities, and other factors. The more nearly equal the operators are as to age, experience, managerial ability, amount of operating capital, size and quality of family labor force, etc., the better will the comparisons reflect differences attributable to tenure status. In fact, to get an ideal comparison we should need to eliminate all other factors affecting farming practices in order to know what would be the differences in operations of the same farmer on the same farm at the same time with no condition changed except tenure status. Assuming that such a comparison would show a difference, we would expect such differences to vary both between individual operators and between farms.

We cannot, of course, expect to find ideal comparisons, but having ideal and desirable comparisons in mind may help us to approach more accurately the

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¹ See, e.g.: Henry A. Wallace, "Tenancy—A Tough Nut to Crack" (statement to the President's Committee on Farm Tenancy), reprint in *Wallace's Farmer*, January 2, 1937, pp. 2 and 18; *Farm Tenancy*, report of the President's Committee (Washington, D.C.: Government Printing Office, 1937), p. 6; Milton S. Eisenhower, "Land and Water Policies of the Department of Agriculture" (statement before the Subcommittee on National Water Policies, National Resources Planning Board, January 15, 1940, mimeographed); "Agricultural Labor Problems in Arkansas," Arkansas State Policy Committee, *Published Paper No. 1*, pp. 24-5, reviewed by J. A. Baker as "Farm Tenancy: Report of the Arkansas State Policy Committee," 13 *Journal of Land & Public Utility Economics* 90 (February, 1937); and J. G. Maddox, R. Schickele, and H. A. Turner, "Tenancy and Soil Conservation," *Soils and Men, USDA Yearbook*, 1938, pp. 151-7.

objective of determining the real implications of tenure status on soil conservation.

Another major inadequacy of the comparisons available is the measure or indicator of soil erosion and depletion used. Soil cover, which in most of the tenure studies is indicated only by the proportion of intertilled crops, is, although the most important, yet only one of several major factors affecting soil erosion.² This measure generally overstates the differences on the basis of suitability of the land to use of intertilled crops, and understates them with reference to terracing or other conserving practices aside from those dependent on crops grown.

Erosion is recognized as far more serious than depletion in areas subject to soil erosion, and the soil erosion effect of an intertilled crop varies widely between soils of various land-use capabilities.³

An additional qualification is necessary in making comparisons of farms in areas where plantation farming characteristics exist, particularly when share croppers or share renters are involved. It is suggested in the following statement by Nicholls:⁴ "The chief function of tenure systems in central Kentucky from the standpoint of the owner is to get crops grown rather than to secure the operation of an entire diversified farming enterprise." Some owners work part of their farms themselves and get some of a special crop grown by sharing

it with a cropper or other tenant, with the cropper or tenant being given control over very little land other than that on which the special crop is to be grown. If the cropper or tenant lives on the land, it becomes a "farm" under the census definition. L. C. Gray calls such an organization "a two-fold system of organization within a single economic unit."⁵ Such interdependent owner and tenant "farms" are not comparable even though they may be on similar land and in similar size groups.

Differences Shown by Comparisons

Many of the census data that have been used in showing comparisons of cropping practices on owner and tenant farms are subject to a number of qualifications. The number of such qualifications has been reduced considerably, however, in one division of this type of data presented in the 1938 *Yearbook* of the United States Department of Agriculture. It is a special tabulation of all farm schedules for 27 "small homogeneous areas" with comparisons of percentages of cropland harvested and in pasture shown for owner farms and for tenant farms within size groups.⁶

The variation in percentage of land in crops and in pasture, as shown by these census data, is wide, particularly between farm-size groups. For different areas, the number of acres of crops per 100 acres on tenant farms exceeds that on owner farms by only 7, 8, and 9 acres in the corn, wheat, and tobacco areas,

² "It would be difficult to conceive of a physical process involving more modifying influences than soil erosion," according to H. H. Bennett. Experimental results indicate that character of soil ranks second to kind and density of vegetative cover as to influence on soil losses from erosion. Loomis Havemeyer and others, *Conservation of Our Natural Resources, based on Van Hise's The Conservation of Natural Resources in the United States* (New York: Macmillan Co., 1930), pp. 76 and 81.

³ For a brief outline of land-use capabilities and land-

use capability classes, see H. H. Bennett's *Soil Conservation* (New York: McGraw-Hill Book Co., Inc., 1939), pp. 155-8.

⁴ W. D. Nicholls, "Farm Tenancy in Central Kentucky," *Ky. Agric. Exper. Sta. Bull.* 303, p. 177.

⁵ L. C. Gray, "Tenancy versus Ownership as a Problem in Utilization of Farm Real Estate," 148 *Annals of the American Academy of Political and Social Science* 212 (March, 1930).

⁶ "Soils and Men," *USDA Yearbook*, 1938, p. 154.

and by as much as 16 acres in the cotton area. The average for all areas is 9 acres more crops and $2\frac{1}{2}$ acres less plowable pasture per 100 acres for tenant farms than for owner farms.

Of the experiment station and the United States Department of Agriculture bulletins reviewed for this paper, 10 present comparisons of crops grown by owner-operators and by tenants. Five of these reports (Delaware No. 178, USDA No. 1068, Maryland No. 352, Arkansas No. 235, and Iowa No. 350) show a difference in acreage of intertilled crops of only 3 acres or less per 100 acres of crops as between owner and tenant farms. Four of the reports (Missouri No. 121, Kansas No. 221, Iowa No. 333, and Iowa Research Bull. 221) indicate that, on the average, tenants grow 7 to 10 more acres of intertilled crops per 100 acres in crops. According to the other report (Georgia No. 191), white tenants average 10 more acres of intertilled crops per 100 acres of crops than white owners, and colored tenants have 17 more acres of intertilled crops per 100 acres of crops than colored owners.

On the basis of animal units per 100 acres, two of the reports (Missouri No. 121 and Delaware No. 178) indicate that tenants keep, on the average, about $\frac{3}{4}$ as much livestock as owners. In one (Arkansas No. 235) it is shown that tenants have slightly more livestock than owners, and in one (Iowa No. 221) about $\frac{2}{3}$ as many animal units are reported on non-related tenant farms as on owner farms. On the basis of value of livestock or products sold, the other two reports with such comparisons (Iowa No. 350 and Kansas No. 221) also indicate that tenants keep approximately $\frac{3}{4}$ as much livestock as owners.

Another comparison sometimes used deals with the payment of rent in

crops and the feeding of a smaller amount of livestock. Tenants are shown by some of the reports to be disposing of a higher proportion of crops off the farms than are owners. Inadequacy of data on this point, complications from the buying of feeds, and questions as to the methods of figuring "sales" indicate both difficulty in arriving at a mathematical approximation of measurement of this factor and a question of its validity. Inadequacies in the data also prevent any estimate of the greater amounts of livestock kept by owner-operators because of feed they received as rent from their tenants.

The question may now be raised as to what reasons have been discovered or suggested to explain the differences found in farming practices on owner and tenant farms, and what has been found to be the relative importance of each. Upon the character of the answer to this question depends the precision of any later statement of relations involved.

Reasons for the Differences Shown

Some of the differences shown by comparisons of farming practices of owners and tenants may be accounted for in *differences between farms* themselves. One illustration of this is found in cases similar to one referred to earlier in this discussion as a "two-fold system of organization within a single economic unit." Including as a farm an acreage allotted to an individual for growing a specified crop may have accounted for some of the differences shown by the census data from "homogeneous" areas. Another illustration of differences that may be caused in part by differences between farms is found in studies covering non-homogeneous areas where adapted types of farming vary between different parts of the area. A reference to graphic summaries of

distribution of farm crops⁷ and of farm tenure⁸ shows that the number of tenants tends to be relatively greater in cash crop areas where the acreages of the leading cash crops form a high proportion of all crop acreages. Livestock is also relatively less important in these areas, and the proportion of farm land suitable for crop production is often higher in such areas. Considerable variation also exists in this factor within relatively small areas. In so far as these factors are effective, tenant farms in a sample may tend to be above average in productivity. Therefore, they may have a high proportion of land in cash crops. But this arrangement may well be within the relative capability of the land for production of intertilled crops and, therefore, need not necessarily have soil depletion implications.

On the other extreme, however, tenancy may in some instances be used as a step in abandonment of farms, as is suggested by R. T. Burdick⁹ when he says that some of the landlords are former operators "forced to seek a living elsewhere." An indication that a high proportion of farms nearest the point of abandonment may be operated by tenants, in some situations, is given in one of the Iowa studies reviewed, where 18 of the 25 most severely eroded farms were operated by tenants.¹⁰

If we may judge from some of the Colorado experiences and those found in the Georgia study reviewed, where "seven-eighths of the land cleared on slopes of 7 per cent and more should never have been cleared,"¹¹ perhaps, as

Burdick suggests, some of the "troubles attributed to tenancy should be blamed upon faulty land use and unsound land promotion" or policies.

In the competition among tenants, the most unproductive farms with the poorest facilities for livestock production may tend to be cultivated by tenants with less than average ability or at least by those whose reputation and equipment are not yet built up to the point where they are able to rent the better farms. Both the low physical productivity of this kind of farm and its inability to draw an operator with adequate livestock and other operating equipment would themselves tend to promote the continuation of soil erosive and depleting practices.

One experiment station report under review shows a high degree of association between short tenures of two years or less and farms that are severely eroded and have buildings of extremely low values.¹² It seems entirely possible that the nature and conditions of these farms may have been a causal factor in determining the short tenures, which the authors of this report considered to be a serious problem. According to the report, the proportion of intertilled crops on these farms is also high, but an adequate statement of causes of such practice would likely involve not only a study of the characteristics of these farms but also of the operators in the area who are temporarily unable to get possession of more desirable farms. The discovery of reasons for the present

⁷ O. E. Baker and A. B. Genung, "A Graphic Summary of Farm Crops," *USDA Miscellaneous Publication 267*, Washington, D. C., 1938.

⁸ H. A. Turner, "A Graphic Summary of Farm Tenure," *USDA Miscellaneous Publication 261*, Washington, D. C., 1936.

⁹ R. T. Burdick, "Landlord and Tenant Income in Colorado," *Colo. Exper. Sta. Bull. 451*, p. 5.

¹⁰ Rainer Schickele and John P. Himmel, "Socio-

Economic Phases of Soil Conservation in the Tarkio Creek Area," *Iowa Exper. Sta. Research Bull. 241*, p. 393.

¹¹ W. A. Hartman and H. H. Wooten, "Georgia Land-Use Problems," *Georgia Agric. Exper. Sta. Bull. 191*, p. 121.

¹² Rainer Schickele, John P. Himmel, and Russel M. Hurd, "Economic Phases of Erosion Control in Southern Iowa and Northern Missouri," *Iowa Exper. Sta. Bull. 333*, p. 213.

conditions of the farms, however, needs to be based on a historical study in line with the long-time progressive nature of the soil erosion process.¹³

In some of the studies reviewed where estimates of degree of erosion were made, an additional selective factor may have entered to put a relatively higher proportion of farms of a particular kind into the tenant-farms group. The authors of one of these reports say that there was "over-evaluation and relative over-encumbrance of the more rolling and less productive lands"¹⁴ when mortgage loans were made or renewed. It would seem that the farms on which these evaluation errors were greatest and where later care of the farm by owners was poorest might well be the very ones on which debt-burdened owners found most difficulty in meeting payments. It might be just such farms that were allowed to revert, with their relatively high debt burdens, to corporate and other mortgage holders who were, in turn, renting them to tenants at the time surveys were made.

That the selective factor of mortgage foreclosure may be effective in the study to which reference has been just made is indicated by the much greater association of high mortgage debt and high relative erosion ratings on tenant than on owner farms.¹⁵

Differences in farm practices attributable to *differences in size of farms* may underlie comparisons of acreages of

various crops grown by owners and tenants unless careful size groupings are made. In one study, a high proportion of tenants in the smaller size-groups of farms accounts for the higher proportion of intertilled crops on tenant farms than on owner farms. With comparisons within rather narrow size-groups, the data then reveal no significant difference in land use by owners and tenants.¹⁶ With careful handling of the size-of-farm item, a range from 19% of the farm land in cotton and corn is found on farms over 260 acres in size to 52% of the land in these crops on farms in the 40-acre group.¹⁷

Differences in age, experience, managerial ability, efficiency, and financial ability, including amount of operating capital and credit, may account for some differences between farming practices of owners and tenants. The traditional "agricultural ladder" in progress from tenancy to ownership is based upon growth in these factors. In a study of tenancy in central Illinois, 60% of the owners are reported to have been tenants before they became owners.¹⁸ And "the different tenure stages function not only as stepping stones in tenure progress but they function also as selective agencies tending to keep the operators of least ability in the lower stages."¹⁹

O. G. Lloyd recognizes the importance of capital and differences in ability when he suggests that tenants be

¹³ In a historical study in Fillmore and Mower counties in Minnesota in 1937, only 8 of 18 tenant farms included had been tenant operated a major portion of the time. ("Preliminary Study of Farming and of the Soil Conservation Program in the Deer-Bear Creek Demonstration Area," by Hjalmar O. Anderson and C. Herman Welch, Jr., Economics of Soil Conservation Research Division, Soil Conservation Service.)

¹⁴ Schickele and Himmel, *op. cit.*, p. 388.

¹⁵ *Ibid.*, p. 386.

¹⁶ J. A. Dickey, "Farm Organization and Management in Typical Upland Sections of Arkansas," *Ark. Agric. Exper. Sta. Bull.* 235, p. 91.

¹⁷ For a discussion of the importance of size of farm in determining land use, see "Size of Farm Related to Soil Misuse," M. R. Cooper and W. J. Roth, Soils and Men, *USDA Yearbook*, 1938, pp. 148-150, or Rainer Schickele, "Economic Implications of Erosion Control in the Corn Belt," 17 *Journal of Farm Economics* 433 (August, 1935).

¹⁸ Gustav W. Kuhlman, "Tenancy in Central Illinois," 3 *Journal of Land & Public Utility Economics* 293 (August, 1927).

¹⁹ J. T. Sanders, "Farm Ownership and Tenancy in the Black Prairie of Texas," *USDA Bulletin* 1068, 1922, p. 4.

supplied with "capital and supervision in a type of farming which will make it profitable for the landlord to hold his land and a disadvantage for the tenant to move."²⁰ The same recognition is given by Elwood Mead in his plea for assistance to tenants in attaining ownership.²¹ Hartman and Wooten in their Georgia study blame the prevailing credit system along with the one-crop system for preventing tenants from "getting a start in other lines" as there are "some tendencies for owner-operators" to do.²²

In a study covering nine scattered areas in Nebraska, value of equipment on tenant farms is stated to be only about $\frac{3}{4}$ as much as on owner-operated farms.²³ In a study in Delaware differences in age, experience, and financial conditions are listed as major reasons for differences in operations of owners and tenants. The tenants included in this sample are shown to be 9 years younger than owners and to have only about $\frac{3}{4}$ as much operating capital.²⁴ Average investment figures given in a study in Missouri are \$12,555 for owner-operators and \$1,547 for tenants. This study also points out that tenants who had been tenants two years or less have an average of only a little over $\frac{1}{2}$ as much operating capital as those who have been tenants three to five years. Those who have been on the same farm two years or less have an average of less than $\frac{2}{3}$ as much operating capital as those who have been on the same farm three to five years.²⁵

The association between the proportion of intertilled crops and the amount

of operating capital, within farm size groups, shown in an Arkansas study, further indicates that amount of operating capital may be a factor in determining farming practices.²⁶

When we recognize that farming systems in livestock and general farming areas involve the coordination of livestock and cropping practices, and when we consider the nature of pasture and hay crops in such areas, we realize that there is little financial incentive for *either* an owner *or* a tenant to devote land to pasture and hay uses if he is not able, financially or otherwise, to acquire the necessary livestock and haying equipment. Cash crops may be the alternative and may be grown without any conscious effort at "exploitation."

It might be argued that, as a result of tenant status, this class of farmers is hindered from accumulating capital, and that this lack of capital encourages a depletive farming system. The point, however, is that our studies need to expose just such a relationship if it does exist. Present studies do not attempt to meet this point. But if the lack of capital is what makes tenants of these farmers, or if their lack of capital is the result only of their youth, inexperience, or other non-tenure-status factors, then the comparisons mentioned are that much misleading. Reports that include data on the age of owners and tenants are consistent in showing the owner-operators to be older than tenants.

The association between a long period of steady residence on the farm and a high proportion of income from beef

Nebraska," *Neb. Exper. Sta. Bull.* 205, p. 26.

²⁰ O. G. Lloyd, "Farm Leases in Iowa," *Iowa Agric. Exper. Sta. Bull.* 159, 1915, p. 206.

²¹ Elwood Mead, "How California is Helping People Own Farms and Rural Homes," *Calif. Agric. Exper. Sta. Circular* 221, 1920, p. 4.

²² *Op. cit.*, p. 80.

²³ J. O. Rankin, "Tenure and Farm Investment in

²⁴ R. O. Bausman, "Farm Tenancy in Delaware," *Del. Agric. Exper. Sta. Bull.* 178, p. 20 and 34.

²⁵ O. R. Johnson and W. E. Foard, "Land Tenure," *Mo. Agric. Exper. Sta. Bull.* 121, pp. 88 and 98.

²⁶ Unpublished data, Department of Rural Economics and Sociology, University of Arkansas College of Agriculture.

cattle that is reported in an Iowa study²⁷ may be an indication that as operators grow older and accumulate a larger amount of capital, they tend to shift to a more labor-extensive type of farming.

Various studies of census data have also indicated important differences in age and financial ability of various tenure groups, particularly the studies reported by L. C. Gray in the 1923 *Yearbook of Agriculture*.

Thriftiness and individual time preference may account for some of the differences under discussion. If some tenants have for these reasons failed to accumulate funds for needed operating capital including livestock or for becoming owners, their records would appear in the tenant group if in either. Gray suggests that the fact that men have become owners may reflect the efficiency and thrift which have enabled them to climb out of the tenant class, "except perhaps in areas where conditions make it more desirable to operate as a tenant than as an owner."²⁸

Differences in size and quality of family labor forces may account for some differences between farming practices of owners and tenants. A large labor force would tend to have somewhat the same influence on farm organization as a small size farm. Tenants, in so far as they are younger than owners, may have a larger number of children at home. Kuhlman states that in central Illinois "perhaps the bulk of corn cultivating is done by boys under 16 years of age."²⁹ In a study in Georgia, an average of 1½ more children per family is reported for tenant farms than for owner-operator

farms. A sociologist reports that "tenant families have more children, have them earlier, and do not get them started in enterprises of their own as soon as the owners do."³⁰

That any *influence of landlords* in causing practices on tenant farms to differ from those on owner-operator farms may, like other factors, vary between areas, is indicated by the following statement based on something over 20,000 questionnaires returned by landlords in a study by the Division of Land Economics, Bureau of Agricultural Economics, United States Department of Agriculture, in 1920:

"About two-thirds of the landlords who lived in the South lived on farms, whereas only a third of the landlords reporting from the Corn Belt states and something more than a third of those reporting from states along the northeastern seaboard lived on farms. Over half those from the Great Plains states reported their residences to be on a farm. Fifty-three per cent of all landlords replying to the question on distance from their farm reported the farm to be within three miles of the residence of the owner."³¹

Comparisons of these results with those from local surveys indicate that there may also be variations within areas. A Delaware report³² lists 45% of the landlords studied as active or retired farmers; whereas an Iowa report³³ places 46% in these classifications. Such wide variations in opportunity for contact of landlords with their farms, together with a wide range in types of landlords, can but mean a variation in any influence exerted by them on operations of their tenants.

An Iowa report shows an average of

²⁷ Schickele, Himmel, and Hurd, *op. cit.*, p. 215.

²⁸ L. C. Gray, *op. cit.*, at 216.

²⁹ *Op. cit.*, p. 291.

³⁰ W. H. Metzler, "Farm Family Habits and Attitudes as Affected by Tenure and Other Factors," unpublished manuscript, Department of Rural Economics and Sociology, University of Arkansas, p. 93.

³¹ Howard A. Turner, "Absentee Farm Ownership in the United States," 3 *Journal of Land & Public Utility Economics* 57 (February, 1927).

³² Bausman, *op. cit.*, p. 59.

³³ Schickele and Himmel, *op. cit.*, p. 378.

three more acres of corn per 100 acres being grown on farms owned by corporate landlords than on those owned by private landlords.³⁴ An absentee landlord who has become such by investment in "safe farm mortgages" may be interested in having crops grown that can be sold most easily and quickly; whereas an active landlord living nearby may be much more interested in the care of the farm and in the farm business.

Influence of landlords is very closely associated with *adaptation of farm leases* to the interests of the tenant, the owner, and to the type of farming. A Kansas report accounts for differences in operations of tenants and owners in terms of adaptation of leases and states that present leasing practices result in limitation of pasture and feed crop acreages by landlords.³⁵ A study in Maryland indicates that landlord restrictions existed as to the number of livestock that could be kept on 27% of the tenant farms.³⁶ The same reason accounts in part for the smaller numbers of livestock on tenant farms in Delaware, according to Bausman.³⁷ Lack of a financial incentive for landlords to provide adequate facilities and improvements is listed by Coleman and Hockley³⁸ as one of the reasons for unfavorable comparison of tenant farms with owner farms. The fact that all these references point toward need for improvement in rental contracts as a means of improving practices on tenant farms is a suggestion that tenure, per se, is not responsible for all differences shown in comparisons of practices on owner and tenant farms.

Schickele, Himmel, and Hurd³⁹ show

a difference of 17 acres in corn per 100 acres of crops between farms operating under stock-share leases and those operating under one-year crop-share leases. Of course, we should be careful not to ascribe all of this difference to only the difference between the two types of leases just as we should recognize that factors other than tenure are involved in comparisons between tenure groups. However, the large number of agricultural experiment station reports of studies dealing with farm leases and leasing practices is an indication of a rather general recognition of adaptation of leases as among the major problems in determining desirable farming practices by tenants.

Frequency of moving is emphasized, particularly by the Missouri⁴⁰ and Iowa reports, as a cause of poor farming, and longer leases are recommended. However, according to A. H. Benton,⁴¹ "long-term leases are a result rather than a cause of high class tenant farming." Regardless of the major direction of any cause and result relationships between the two, no record was found of any significant number of long-term leases.

Costs of moving hinder the accumulation of capital in livestock and equipment, but there seem to be some offsetting influences. In the Delaware study⁴² around $\frac{2}{3}$ of the moves of tenants are reported to be for reasons pertaining to the farm, indicating that most moves are in expectation of economic (and probably to some extent social) betterment. A study of 2,075 farm moves in Oklahoma reports that

³⁴ Schickele, Himmel, and Hurd, *op. cit.*, p. 223.

³⁵ W. E. Grimes, "Farm Leases in Kansas," *Kans. Agric. Exper. Sta. Bull.* 221, pp. 11-2.

³⁶ W. P. Walker and S. H. Devault, "Farm Tenancy and Leasing Systems in Maryland," *Md. Agric. Exper. Sta. Bull.* 352, p. 53.

³⁷ *Op. cit.*, p. 25.

³⁸ William J. Coleman and H. Alfred Hockley, "Legal Aspects of Landlord-Tenant Relationships in Oklahoma," *Okla. Agric. Exper. Sta. Bull.* 241, p. 20.

³⁹ *Op. cit.*, p. 221.

⁴⁰ Johnson and Foard, *op. cit.*, p. 109.

⁴¹ A. H. Benton, "Farm Tenancy and Leases," *Minn. Agric. Exper. Sta. Bull.* 178, 1918, p. 4.

⁴² Bausman, *op. cit.*, p. 75.

54% were for economic betterment.⁴⁵ In the Delaware study, Bausman says that the average length of tenure for tenants is two years longer on farms above average in value than on those below average in value.

One of the Iowa studies⁴⁶ presents a striking association between tenures of less than two years and percentage of land in intertilled crops, but no comparisons are offered to indicate the extent of differences in farming practices between operators of farms on which periods of occupancy were short and other similar operators with similar equipment on similar farms under longer tenures.

Present laws governing landlord-tenant relationships are rated as the most important factor among the major reasons for differences revealed in comparisons of practices on owner and tenant farms in a study in Oklahoma.⁴⁶ The need for appropriate laws for improvement of practices and conditions of tenants is also emphasized in California and Iowa reports.

Differences in attitude, according to some writers, account for a large part of the differences between farming practices of owners and tenants. One report states that tenure largely determines the attitude of the operator toward the land and that this attitude "strongly influences the character of land use and degree of exploitation of the natural resources."⁴⁸ This argument is supported with the case of tenants who are related to the landlord, and whose farming practices are found to be very similar to those of owner-operators. The evidence requires the assumption, however, that

related tenants are comparable to other tenants on all important points other than "attitude."

In commenting on the commonly accepted statement that tenants under short or indeterminate leases have little interest in conservation of soil and timber resources, L. C. Gray says that this conclusion is "subject to the qualification that owner-operators as a class may be characterized by a similar attitude, particularly when land is abundant," that "our economic history has amply demonstrated the fact that owners will exploit the soil as readily as will tenants under such conditions," and that "even after land comes to have a considerable value, the earlier acquired habits persist."⁴⁷

A somewhat different idea of the effect of attitude in determining farming practices in one area is indicated by the following statement by Metzler, based upon a study of 289 owner and tenant farm operators:

"Farming in upland Arkansas is primarily a way of life, a set of customary routines and practices, rather than a business enterprise. Farming methods are guided largely by traditional habits, attitudes, and ideas rather than by scientifically calculated procedures."⁴⁸

The fact that numbers of surveys reported in experiment station and United States Department of Agriculture bulletins (Iowa No. 350, Arkansas No. 235, and USDA No. 1068, among those reviewed) show a remarkable similarity in land use on owner farms and tenant farms would seem to support the suggestions of Gray and Metzler that attitudes may not vary as widely

⁴⁵ J. T. Sanders, "The Economic and Social Aspects of Mobility of Oklahoma Farmers," *Okl. Agric. Exper. Sta. Bull.* 195, 1929, p. 34.

⁴⁶ Schickele, Himmel, and Hurd, *op. cit.*, p. 213.

⁴⁷ Coleman and Hockley, *op. cit.*, p. 20.

⁴⁸ Schickele and Himmel, *op. cit.*, p. 367.

⁴⁷ *Op. cit.*, at 217. For a more complete statement on this point, see L. C. Gray, "America's Traditional Land Policy," *USDA Yearbook*, 1938, pp. 111-5.

⁴⁸ Metzler, *op. cit.*, p. 1.

between owners and tenants as has been assumed by some writers, and that common customs, habits, and ideas may exert an influence toward uniformity in farming practices. The fact that some tenants in areas where significant differences between owner and tenant practices are found grow a lower proportion of intertilled crops than the average amount grown by owners (seven acres less among the stock-share tenants in an Iowa study, for example)⁴⁹ would also seem to suggest that the factor of differences in attitude may not, after all, be the dominant factor in determining differences in farming practices on owner and tenant farms.

Acceptance of attitudes as a basis for explaining why members of one tenure class follow more exploitative practices than those of another class would greatly limit the areas for which these explanations appear satisfactory. Such explanations are unreasonable when applied to the colored Georgia tenant, 9/10 of whose crops were intertilled. They become questionable in areas where there are no significant differences in practices on owner and tenant farms. They do not work when applied to the Maryland tenant who finds it to his advantage to use a high proportion of his land for hay crops and pasture.

Security of tenure is emphasized in Iowa and Missouri reports as a most important factor in differences between farming operations of owners and tenants and is listed in an Ohio report as among the most important factors.⁵⁰ The necessity for long-time planning in farming and the difficulty in moving a large amount of livestock and equipment

seem to be the bases for the importance ascribed to this factor, aside from the question of "attitudes."

In two publications, differences in farm practices of tenants who are related and those who are non-related to the owners are explained in terms of security of tenure. Four suggestions can be found to indicate that there may sometimes be other significant differences in favor of the related tenants, such as a larger amount of capital or other greater opportunities. In an Iowa study, 56% of the related tenants are classed as having high school educations as against 24% for the non-related tenants, whose average age is only 8 years older.⁵¹ Average lengths of occupancy for the non-related tenants in this study are 5 years, 6.2 years, and 9.1 years, for those operating under cash, crop-share, and stock-share leases, respectively. For the related tenants, these figures range from 8 to 8.9 years. In the Delaware report to which reference has been made, Bausman finds an average length of tenure of 6 years for non-related tenants as against 6.4 years for related tenants (sons and sons-in-law). A report from the Colorado Experiment Station says:

"Our records show instances where a landlord has sacrificed all hope of personal gain from a specific farm in order to provide some degree of comfort or security to sons or daughters living on his farm."⁵²

High cash rental rates on hay and pasture land under crop-share leases, according to one experiment station report,⁵³ cause some increase in acreage of intertilled crops on rented farms. This may be more a problem of opportunity cost or comparative advantage than of

⁴⁹ Schickele, Himmel, and Hurd, *op. cit.*, pp. 216 and 221.

⁵⁰ F. L. Morrison and J. I. Falconer, "The Relationship between Soil Productivity Maintenance and Profitable Farming," *Ohio Agric. Exper. Sta. Bull.* 604, p. 16.

⁵¹ Schickele and Himmel, *op. cit.*, p. 397.

⁵² Burdick, *op. cit.*, p. 5.

⁵³ Rainer Schickele and Charles A. Norman, "Farm Tenure in Iowa: I. Tenancy Problems and Their Relation to Agricultural Conservation," *Iowa Exper. Sta. Bull.* 354, p. 175.

tenure, however, because the intertilled crop which may be grown on the land on a crop-rent basis is expected to return as high a rent as the amount of cash that is said to be too high for hay or pasture. Reflection on this problem might lead into the question of what is going to happen to relative prices and what will be the implications of such price shifts when present programs really become effective in decreasing acreages of intertilled crops and increasing livestock numbers. What are the elasticities of demand for the various products involved? One might suggest that more attention be given to adaptabilities of soils and farming systems, promoting somewhat less reduction in acreage of intertilled crops on land capable of such production and giving greater recognition to other means of productivity maintenance such as cover and green manure crops, instead of going so far in the reduction of intertilled crops and increase of livestock numbers as to cause price shifts that will make the growing of intertilled crops more attractive and the production of livestock and livestock products less attractive to farmers on lands subject to erosion.

In only one report among all those consulted was there found any indication of doubt about the need for a decrease in the proportion of intertilled crops and an increase in roughage-consuming animals. This should not be taken to mean that "all are out of step except one." It is simply a statement of findings.

Causal Factors Grouped by Tenure

The question may now be raised as to which of these reasons found for differences between farming practices of owners and tenants are entirely peculiar to tenancy and in no way involved in ownership, which are more effective in degree in the case of tenants, and which

may be similar in their effect on members of the various tenure groups.

A review of the factors considered reveals only *landlord relationships*, and the *legal problem* mentioned, as entirely peculiar to tenancy. The *landlord relationships* including *proper adaptation of leases* may be either an advantage or a disadvantage from the standpoint of soil erosion and depletion. They are an advantage when by assistance of the landlord a tenant is able to arrange for proper equipment, including livestock in livestock areas, or when by financial assistance, supervision, or otherwise, soil erosive and depleting practices are reduced below what they would be if the operator were working independently. They are a disadvantage when a landlord insists on a maximum proportion of intertilled cash crops or by any other method forces more exploitative practices than a tenant or owner-operator would otherwise follow. That tenancy involves both landlords and tenants is inherent, but results of the combinations are governed by conditions under which they operate. *Legal problems* should become less difficult with further development of research, but education will also be required for overcoming custom, habit, and lack of understanding.

Differences in security of tenure, attitudes, and problems of moving, more important as they generally are for tenants, are matters of degree in a period of time. Problems of credit vary to some extent with permanence in location, the nature of property, and the customary security required for much agricultural credit.

The other factors considered as causes of differences in farming practices of owners and tenants may affect farming practices in a similar manner regardless of tenure status of the operator.

Possibilities of combinations and de-

gree of association among various factors within these groups as well as with still other factors are, of course, almost endless.

Summary

1. Differences in farming practices between owner-operated farms and tenant-operated farms, as measured by proportion of crop acreage in intertilled crops, by relative amounts of livestock, and by proportion of crops removed from farms through sale and rent payments, are found to vary between areas.

2. Ten experiment station reports showing comparisons of average proportions of intertilled crops grown by each of these two major tenure groups divide into two groups of five each. One group is characterized by a difference of three acres or less per 100 acres, and the other shows roughly around nine acres more of such crops per 100 acres on tenant-operated farms. Five of six experiment station reports showing comparisons of livestock kept or livestock products sold indicate that only about $\frac{3}{4}$ as much livestock are kept per 100 acres on tenant farms. One report indicates no significant difference in this respect. A smaller number of studies reporting crop sales and payment of rent in crops indicates the disposal of a higher proportion of crops off the farms in the tenant group.

Census data from 27 "homogeneous" areas within four type-of-farming areas indicate that the proportion of land in crops is higher on tenant farms than on owner farms.

3. The following factors have been here considered as among possible reasons for differences in average acres of intertilled crops and in livestock numbers between owner-operated and tenant-operated farms: differences between farms; differences between operators in age, experience, managerial

ability, efficiency, and financial ability including operating capital and credit; differences in thriftiness or time preference of operators and families; differences in size and quality of labor force; influence of landlords; leases; legal restrictions governing landlord-tenant relationships; attitudes; frequency of moving; and security of tenure.

4. Greater variations in farming practices are found within tenure groups than between groups, and some tenants appear to be growing a smaller proportion of intertilled crops than the average proportion grown by owners included in the sample.

5. Among factors influencing farming operations, those that are entirely peculiar to tenants are landlord relationships, including leasing arrangement, and legal rights and privileges. Factors which are to a greater degree important for tenants include security of tenure, frequency of moving, attitudes, and credit to the extent that this problem is greater for tenants on account of less permanence in location and lack of a deed to immovable property.

The other factors which have been said to be causes of differences shown in farming practices between the two major tenure groups rather appear to be operative regardless of the tenure status of the operator. Possibilities of combinations of factors and degree of association are almost unlimited.

Conclusions

Farm land use in the United States is influenced by a large number of factors, the relative and absolute importance of which varies between areas. Differences in use and therefore in effect on soil erosion and depletion, according to the principal criteria used in tenure studies, on owner and tenant farms vary so as to complicate any general statement of

relationships of tenure to soil erosion and depletion for those who seem to accept these differences as attributable to tenure. But the presence of important influences other than tenure that also appear to be represented in these differences and the inadequacy of data and methods used for isolating the influence of each of these various factors preclude any precise statement of relationships involved in any area studied, much less for the whole United States.

Probably as definite a general statement of relationship of farm land tenure to soil erosion and depletion as can be made on the basis of this study is that the tendency for farming practices on owner and tenant farms to approximate each other, as conditions other than tenure involved in the comparisons are brought nearer to uniformity, indicates that any such relationships are much less "striking" than is generally supposed. The complexity of the whole problem and the indicated influences of

various factors included show definitely that ownership does not necessarily mean conservation, that tenancy does not necessarily mean soil erosion and depletion, and that differences in farming practices on owner and tenant farms may be a reflection of many causes other than differences in tenure.

To the extent that these conclusions are justified, rather definite implications for both research and policy seem to follow. For research, more effort may need to be directed toward evaluating and eliminating from comparisons between tenure groups influences other than tenure. Or tenure might be considered as one among many influential factors in a broader land use study. For policy, control of soil erosion and depletion may be advanced on both owner and tenant farms by the establishment of conditions favorable to soil conserving uses of land, recognizing, of course, the larger number of problems on tenant farms.

SEC Integration of Holding Company Systems

By ROBERT BLUM*

IN SECTION 11(b)(1) of the Public Utility Holding Company Act of 1935¹ Congress made it the duty of the Securities and Exchange Commission to limit each holding company to control of a single integrated public utility system, and only such additional systems and other businesses as could meet prescribed standards. That task was made more difficult by differences of opinion regarding the meaning of major provisions of the act, and by the controversial nature of factors to be considered in applying broad standards.

The commission instituted integration proceedings under Section 11(b)(1) in February and March, 1940 by separate orders to nine major holding company systems.² Each order stated that the holding company system was not confined to the operations of a single integrated public utility system, ordered the holding company to file answers, and ordered that a hearing be held to determine what action should be taken to comply with Section 11(b)(1). In response, the United Gas Improvement system, and subsequently others, requested that the commission furnish them with state-

ments of tentative conclusions indicating the steps required by Section 11(b)(1).³

In statements of "Tentative Conclusions"⁴ and in Findings, Opinions, and Orders issued between January and August, 1941 the commission has interpreted and applied the provisions of Section 11(b)(1) to those systems. Although the commission has not yet taken final action in these proceedings, its action up to August, 1941 has resulted in major progress toward accomplishment of the commission's integration program, and points toward the severance of major portions of existing systems from their present holding company control.

The commission's interpretation and application of Section 11(b)(1) will be reviewed briefly in this article.⁵ After first indicating the major integration provisions of the act, the article will review the interpretations of Section 11(b)(1) stated tentatively in connection with the United Gas Improvement case, and followed consistently in subsequent cases.⁶ To illustrate the application of Section 11(b)(1), the article will then review the application of that section to the United Gas Improvement, Commonwealth and Southern, and North Ameri-

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¹ Public No. 333, 74th Cong. (S. 2796); Title I, Control of Public Utility Holding Companies, approved August 26, 1935. Hereafter referred to simply as "the act."

² These systems, listed below, have aggregate consolidated assets of over \$8,350,000,000: Electric Bond and Share Co.; Engineers Public Service Co.; Middle West Corp.; United Gas Improvement Co.; Cities Service Power and Light Co.; Commonwealth and Southern Corp.; Standard Gas and Electric Co.; North American Co.; United Light and Power Co.

³ For holding company systems which had not requested statements of the commission's tentative conclusions, the proceedings have been conducted by hearings.

⁴ Subsequent to issuance of each statement of tentative conclusions, the commission reconvened the hearing to give the holding company an opportunity to present its reply.

⁵ Problems of administrative procedure and constitutionality cannot be discussed adequately within the scope of this article. It should be noted, however, that the commission has stated that it has no authority to pass upon the validity of the act, and that it must therefore "proceed on the assumption that Section 11(b)(1) is constitutional unless and until the courts declare otherwise." (Release No. 2897.)

⁶ By following these interpretations uniformly in each succeeding statement of conclusions, the commission achieved substantial equality of treatment for the several systems.

can systems.⁷ It is hoped that the separate reviews for each of these systems may reflect the commission's consideration of the significant differences among the various holding company systems and the special problems relating to a given holding company's control of particular properties. A brief concluding analysis will present a tentative appraisal of the commission's program in relation to further broad problems.

Integration Provisions of the Act

It will be helpful to note first the following definition in Section 2(a)(29):

"Integrated public-utility system means—

'(A) As applied to electric utility companies, a system consisting of one or more units of generating plants and/or transmission lines and/or distributing facilities, whose utility assets, whether owned by one or more electric utility companies, are physically interconnected or capable of physical interconnection and which under normal conditions may be economically operated as a single interconnected and coordinated system confined in its operation to a single area or region, in one or more States, not so large as to impair (considering the state of the art and the area or region affected) the advantages of localized management, efficient operation, and the effectiveness of regulation; and

'(B) As applied to gas utility companies, a system consisting of one or more gas utility

companies which are so located and related that substantial economies may be effectuated by being operated as a single coordinated system confined in its operations to a single area or region, in one or more States, not so large as to impair (considering the state of the art and the area or region affected) the advantages of localized management, efficient operation, and the effectiveness of regulation: *Provided*, That gas utility companies deriving natural gas from a common source of supply may be deemed to be included in a single area or region."

Section 11(b)(1) prescribes the integration requirements as follows:⁸

"It shall be the duty of the Commission, as soon as practicable after January 1, 1938:

"To require by order, after notice and opportunity for hearing, that each registered holding company, and each subsidiary company thereof, shall take such action as the Commission shall find necessary to limit the operations of the holding-company system of which such company is a part to a single integrated public-utility system, and to such other businesses as are reasonably incidental, or economically necessary or appropriate to the operations of such integrated public-utility system: *Provided, however*, That the Commission shall permit a registered holding company to continue to control one or more additional integrated public-utility systems, if, after notice and opportunity for hearing, it finds that—

'(A) Each of such additional systems cannot be operated as an independent system without the loss of substantial economies which can be secured by the retention of control by such holding company of such system;

'(B) All of such additional systems are lo-

⁷ These three systems were selected for consideration here because those proceedings are well advanced, and they illustrate comprehensively the problems the commission has faced. The Engineers Public Service case and the United Light and Power case will not be discussed here since the commission's action to date in each of those cases was based almost entirely on an application of Clause B analogous to the commission's earlier action reviewed herein. However, if the Engineers Public Service Co. were to carry its contentions of unconstitutionality to the courts, that case would take on added importance. Although in the United Light and Power case and certain other cases the commission has also applied the 11(b)(2) requirements for corporate simplification and has indicated the close relation between corporate simplification and integration, the limitations of space make adequate discussion of 11(b)(2) impossible here.

⁸ Section 11(b)(1) of the act quoted above was the result of a compromise by the Committee of Conference of the House and Senate. The bill (S.2796) passed by the Senate on June 13, 1935 provided for elimination of all holding companies promptly after January 1, 1940 except where the continuance of a holding company in the first degree was found necessary by the Federal Power Commission (under applicable state laws) for operation of an economically integrated public utility system serving in a single small geographic area. The substitute bill passed by the House on July 2, 1935 permitted holding companies to operate a single integrated public utility system and such number of other integrated public utility systems as were found to be consistent with the public interest.

cated in one State, or in adjoining States, or in a contiguous foreign country; and '(C) The continued combination of such systems under the control of such holding company is not so large (considering the state of the art and the area or region affected) as to impair the advantages of localized management, efficient operation, or the effectiveness of regulation.

"The Commission may permit as reasonably incidental, or economically necessary or appropriate to the operations of one or more integrated public-utility systems the retention of an interest in any business (other than the business of a public-utility company as such) which the Commission shall find necessary or appropriate in the public interest or for the protection of investors or consumers and not detrimental to the proper functioning of such system or systems'."

Electric and Gas Operations—A Single Integrated System?

To determine what properties a holding company could retain as a single integrated system (as defined in 2(a)(29)), it was necessary for the commission to decide the issue, "Can both electric and gas properties be included in a single integrated public utility system?"

In the Columbia Gas and Electric case⁹ (immediately preceding the commission's first 11(b)(1) statement of conclusions) the commission order stated:

"We rest our decision on our conclusion that the electric and gas utilities (of the included companies) together do not constitute 'a single integrated public-utility system.' No specific definition is found in the Act of an integrated public-utility system operating both gas and electric utilities. The Act (Section 2(a) (29)) separately defines 'integrated public-utility system' for electric-utility companies and for gas-utility companies. In separately defining 'integrated public-utility system' for electric-utility companies and for gas-utility companies, different standards

were prescribed. Moreover, the very nature of the requirements prescribed in the two separate definitions are such as to preclude the possibility of reading both together as a definition which could be applicable to a combined system"

The order further states:

"Having concluded that electric properties and gas properties do not constitute one integrated system, we point out that they may be retained as separate integrated systems only when they conform to the (A) (B) (C) Standards of Section 11(b) (1) dealing with additional systems."

The commission in its tentative conclusions of January 18, 1941, on the United Gas Improvement system followed the Columbia decision and held that a *single integrated system* could *not* include *both* electric and gas properties. After reconsideration of the problem had been requested by counsel for the company, the commission issued a memorandum in which it reasserted the doctrine of the Columbia case.¹⁰ That doctrine has been followed in subsequent cases.

One-Area Interpretation of Clause B

In order to determine whether the United Gas Improvement Company could retain additional integrated systems, the commission had to apply the A, B, and C standards for the first time.¹¹ To apply those standards it was necessary to construe Clause B. Clause B presents the fundamental issue: "Must a holding company limit its operations to one geographic area, or may that holding company continue to control operations in two different geographic areas?"

The Public Utilities Division first prepared a separate memorandum to the

Columbia system was not included in the commission's 11(b)(1) proceedings.

¹⁰ *United Gas Improvement Co., Findings and Opinion* of the Commission, April 15, 1941 (Release No. 2692), Memorandum, Appendix G.

¹¹ To be retainable, systems must meet *all three* of the A, B, and C standards *and* the definition in §2(a)(29).

⁹ *Columbia Gas & Elec. Co., et al.*, January 10, 1941 (Release No. 2477). The company filed an application under §11 (e) for approval of a plan for corporate simplification and a finding by the commission that its properties, including both electric and gas utilities, would conform fully to the standards of §11(b) (1). The

commission dated January 8, 1941 stating its single-area interpretation of Clause B as follows:

"... In addition to the 'single integrated public-utility system' otherwise permitted, a company may, if it meets the factual standards of Clauses (A) and (C), keep additional systems located in one or more States *adjoining the States in which such 'single integrated public-utility system' is located.*..."

The memorandum maintained that the broad policy of the act was to reduce operations of each holding company to a single integrated system, and only (as an exception to that broad policy) such additional systems as together with the principal system were confined to a single geographic area. The memorandum pointed out the importance of Clause B to effective administration of that policy.¹² The single-area interpretation recommended in that memorandum was followed in the report on the UGI system.

¹² The memorandum stated that the range of argument and testimony under Clauses A and C would defeat the primary objective of Congress, but that Clause B can be administered by simply determining the states in which the systems are located, and thus Clause B affords the means of substantially narrowing the area on which proof may be necessary. The memorandum argued that the word "adjoining" and the words "or in a contiguous foreign territory" in Clause B relate back to the states where the principal system is located, and that Clause C relating to the combination of systems connoted confinement to a single area.

In the memorandum on Clause B, the division contended that in Clause C the words "the area or region affected" were in the singular and that its qualification, "not so large . . . as to impair the advantages of localized management, efficient operation, or the effectiveness of regulation," made no sense unless applied to the entire holding company system.

The commission did not state an interpretation of Clause C separately. However, in the Commonwealth and Southern case, it applied Clause C to the combination of any additional systems (or group of systems) and the single integrated system under consideration, rather than to the entire combination of all additional systems and the principal single integrated system.

In its consideration of the legislative history, the memorandum inferred that the Conference Report included both the principal and additional systems in Clause B, cited extracts from the Congressional debates to show that members of Congress believed "Section 11

After considering the division's memorandum and report, the commission on January 18, 1941 first stated its tentative interpretation of Clause B in its tentative conclusions regarding application of the act to the UGI system. The commission's interpretation is quoted below:

"In construing the standard established by Clause (B) of Section 11(b)(1) we have tentatively concluded that it means that a holding company may continue to control an integrated public-utility system or systems additional to the 'single' integrated public-utility system only if all such additional system or systems are located in the same State or States in which the 'single' system is located, or in States adjoining thereto."¹³

Subsequently the commission applied that one-area interpretation in its tentative conclusions regarding other systems.

The holding companies contended that Clause B should be given at least a two-area interpretation.¹⁴ They empha-

would require very substantial diminution in the holdings of the major holding company systems," and quoted statements to show that "Senator Wheeler, principal Congressional exponent of holding company legislation on Section 11(b), interpreted Paragraph B as requiring additional systems to be 'in the same region as the principal system' or, as he phrased it, . . . in 'close proximity to the principal system.'"

¹³ *United Gas Improvement Co.*, Release No. 2500.

¹⁴ At the hearings on these tentative conclusions and in briefs, the holding companies argued that, if Congress had intended restriction to a single area, it would not have used such broad language but could have expressly and easily limited the additional systems to a single geographical area with the principal system. They further argued that the term "adjoining States" may stand alone without relation to any other state, and that the term "contiguous" has its antecedent, if needed, in the states of additional systems within B, and therefore those words do not relate to the principal system. The holding companies contended that Clause C applied only to additional systems, and argued that the antecedents of "such" and "area or region" were the additional systems.

The basic arguments of the holding companies were presented in the Engineers Public Service Co. brief of March 25, 1941 entitled, "Memorandum of Argument on Interpretation of §11(b)(1)(B), and §11(b)(1)(C) of the Public Utility Holding Company Act of 1935" and in that company's "Supplemental Argument

(Footnote 14 continued on page 427)

sized the actual text of Clause B, and stated:

"Viewed in their actual setting and given their natural meaning, the words of Big B obviously mean that there may be retained a system or systems in addition to the principal system and without relation to it geographically, provided only that all such additional systems are located in 'one State, or in adjoining States, or in a contiguous foreign country'; and that '... it would seem unnecessary and indeed improper to go outside of its words to derive its meaning. . . .'"

The holding companies also emphasized that 11(b)(1) as now stated was the result of a compromise between the Senate and House bills,¹⁵ and argued that the two-area interpretation would be consistent with the compromise and that a single-area interpretation would, in effect, nullify that compromise.

After considering the arguments presented by the holding companies at hearings and in briefs, the commission has applied that one-area interpretation as a final conclusion in formal decisions.¹⁶

That interpretation has been of utmost importance in the application of Section 11(b)(1), and may be regarded as the cornerstone of the commission's entire integration program.

Interpretation of Interests in Other Businesses

Holding companies often have investments which are insufficient to make the business a subsidiary under holding

company control as defined in the act. The issue presented was: "Must such investment interests in utilities and non-utilities meet the other business standards of 11(b)(1) to be retainable?" In connection with the United Gas Improvement case, the commission stated its interpretation as follows:

"Section 11(b)(1) contains two references to interests in 'other businesses.' We have tentatively concluded that these provisions taken together mean that the Commission must permit the retention of other businesses, including investment interests in utilities not subsidiaries, which are found to be reasonably incidental, or economically necessary or appropriate to the operations of an integrated public-utility system retainable under the control of a holding company, and that these requirements may be met in the case of interest in non-utility businesses if their retention is found to be necessary or appropriate in the public interest or for the protection of investors or consumers and not detrimental to the proper functioning of such system or systems."¹⁷

Accordingly, investments in utilities, holding companies, and other businesses which are not "subsidiaries" can be retained only if they meet the other business and investment standards of Section 11(b)(1).

Application to UGI System

The commission's tentative conclusions, together with the report of the Public Utilities Division on the United Gas Improvement Company,¹⁸ are es-

2831); Engineers Public Service Co. (Release No. 2897); United Light and Power Co. (Release No. 2923). The holding companies now have an opportunity to appeal to the courts for a judicial review of the interpretation of Clause B.

¹⁷ *United Gas Improvement Co.* (Release No. 2500). This interpretation was reaffirmed after argument (Release No. 2692).

¹⁸ The United Gas Improvement Co.: Total consolidated assets, \$837,504,000; property account, \$626,000,000, as of December 31, 1939. This discussion is based primarily on (1) Report prepared by Public Utilities Division, Application of Section 11(b)(1) of the Public Utility Holding Company Act of 1935 to

(Footnote 18 continued on page 428)

(Footnote 14 continued from page 426)

in Reply to Argument made on March 25, 1941 by Commission Counsel" (March 31, 1941). Those arguments were supplemented and incorporated by reference in the briefs of Commonwealth and Southern Corp. (April 3, 1941 and April 10, 1941) and North American Co.

Certain holding companies have maintained that Clause B should be interpreted to permit operations in two or more areas, provided only that in each additional area the properties be located in states adjoining one another, but not necessarily adjoining the principal system.

¹⁵ See n. 8 *supra*.

¹⁶ Commonwealth and Southern Corp. (Release No.

pecially significant because they represent the first comprehensive attempt by the commission to interpret and apply the major requirements of Section 11(b) (1). It may be noted that the division and commission confined their conclusions to determinations necessary at the present stage. Thus, for a property clearly precluded under some other standard, it was unnecessary to determine whether it constituted an integrated system. Similarly, by applying B first, the commission avoided the necessity of determining whether the property could meet the controversial standards of A and C which require judgment on economic and engineering factors that are difficult to measure.

(r) *The Single Integrated System.* The principal operations of the United Gas Improvement Company's system are concentrated in the territory in southeastern Pennsylvania and portions of northern Delaware and Maryland surrounding the dominant load center, Philadelphia.¹⁹ Accordingly, the division first sought to determine whether the electric utility properties within that area could constitute a single public utility system as defined in Section 2(a)(29). The electric generating plants, transmission lines, and distributing facilities in that area are owned or operated by the Philadelphia Electric Company and nine other subsidiary companies and are confined to a single region with a total population of 3,000,000 within an area of 80 miles by 30 miles in size.

In applying the requirements for interconnection and economical operation

and coordination, the division noted the following factors:²⁰

- (a) That the facilities of all the companies are interconnected by a network of system-wide transmission lines owned or operated by Philadelphia Electric Company;
- (b) That historically construction of the major generating projects, acquisition of electric property, and territorial expansion were directed toward the goal of coordinated operation in the greater Philadelphia area;
- (c) That ownership of 97% of the common stock of the Philadelphia utility companies "results not only in a vital concern with the operations of the properties, but also affords the definite right to exercise control to achieve consolidation of operations";
- (d) That the unified ownership of economical generating plants and the centralized control by a system load dispatcher to coordinate and balance utilization of steam- and hydro-production facilities so as to meet the system demands with the lowest cost generating plants . . . results in the greatest overall economy in production and transmission expense;
- (e) That the market was sufficiently diversified and large enough to permit economies in the sale and distribution of electric energy, was sufficiently compact to be frequently inspected, was sufficiently uniform for analysis, and had sufficient domestic and commercial and industrial loads in the metropolitan area to make possible large generating units which could serve the less densely settled and smaller surrounding communities with low cost energy.

The division concluded that the combination of the small operations in Maryland with Pennsylvania operations would not impair the effectiveness of Maryland regulation. The division also concluded that the location of the holding company offices and the offices of the

come and $\frac{1}{4}$ of the dividends are derived from that area. The electric property of the utility companies within the area approximated \$342,832,000, and produced operating revenues of \$68,675,000. Gas properties of approximately \$73,124,000 produced revenues of \$12,162,000.

²⁰ Report, pp. 99-101.

(Footnote 18 continued from page 427)

the United Gas Improvement Company and Its Subsidiary Companies, and (2) the Statement of Tentative Conclusions of the Commission and Order Reconvening Hearing, January 22, 1941, Release No. 2500.

¹⁹ Over $\frac{3}{4}$ the entire system's plant and property (on a consolidated basis) is located within that so-called Philadelphia area and over $\frac{3}{4}$ of the net operating in-

major executives in the area of the principal system, and the common characteristics of the operating problems in the area gave reasonable assurance that the advantages of localized management would not be impaired.

The commission concluded that the electric properties discussed above constitute a single integrated system as defined in Section 2(a)(29). The commission also concluded that, under the standards for retention of non-utility businesses with the single integrated system, (a) the steam operation facilities are retainable, (b) the realty subsidiaries may be retained to the extent that the real estate can be used in connection with the operations of the integrated electric utility system, and (c) the interests in other businesses cannot be retained.²¹

It will be noted that the single integrated electric utility does *not* include the *electric properties* of the Luzerne County Gas and Electric Corporation, or the Erie County Electric Company in Pennsylvania, or the electric properties in New Jersey, or any *gas facilities* of the *electric companies* within the Philadelphia area,²² or the gas companies in other parts of Pennsylvania.

²¹ This excluded bus operations and companies which had manufactured appliances or gas by-products.

²² The division indicated that:

(1) "Luzerne" operates in a small area approximately 90 miles north of Philadelphia, and is separated from the Philadelphia area by Pennsylvania Power and Light Co., a non-system company. Although both the "Luzerne" and "Philadelphia" have interconnections with the Pennsylvania Power and Light Co., substantial net amounts of energy flow from the Philadelphia Company and from "Luzerne" into the territory of the Pennsylvania Power and Light Co. The transmission lines of Pennsylvania Power and Light are operated to meet the requirements of that system and are not available at the convenience of "Luzerne" and "Philadelphia" for coordination of their operations. The division observed that "there appears to be no possibility for utilization of such interconnection so as to permit the finding that such a combination is a single interconnecting and coordinated system, particularly since the facilities of neither section

(2) *Additional Systems: Properties Precluded by Clause B.* Having first stated the limits of the single integrated system, the commission next applied the A, B, and C standards to the additional utility properties.

Clause B was applied first to exclude (under the one-area interpretation) all gas or electric utility properties which were not located in a state in which the single integrated system was located (Pennsylvania, Maryland, and Delaware) or in states adjoining thereto. Thus the following utility properties were precluded by the B standard:

- (a) the substantial electric and gas properties in Connecticut, including those of the Connecticut Light and Power Company;²³
- (b) scattered independently operated small gas companies serving in Concord, N. H., Manchester, N. H., Nashville, Tenn., and in or about Kansas City, Kansas, and vicinity, and electric and gas properties in and near Prescott, Arizona.

(3) *Additional Systems: Properties Precluded by Clauses A and C.* After the application of Clause B, there remained for consideration only the electric and gas properties in Pennsylvania which were not included in the single system, and the New Jersey properties. To determine whether those properties were retainable

complements the other . . ."; *Report*, pp. 51-52.

(2) Erie County was not included because it is widely separated and is not interconnected.

(3) The New Jersey electric properties (if Public Service Corporation of New Jersey is found a "subsidiary") are interconnected and interchange energy with the Philadelphia system, but were not included because the single system would then be too large to meet the prescribed standards.

(4) The gas facilities owned or operated by UGI subsidiaries within or close to the Philadelphia area were excluded under the interpretation that gas facilities cannot be considered as constituting a part of an integrated electric utility system (*Report*, p. 107).

²³ In area, assets, and revenues, the Connecticut properties (Connecticut Light and Power Co. most important) constituted the largest combination other than the Philadelphia area. (The electric properties in Connecticut are carried at \$84,000,000; and gas properties at \$23,000,000.)

ble, the division applied the requirements of the A and C standards.

In considering the Luzerne County Gas and Electric Corporation located in Pennsylvania (90 miles from Philadelphia) the division noted:²⁴

- (a) that "the possibility of obtaining economies from common control are seriously handicapped by the intervening territory";
- (b) that Luzerne's "operations are not conducted with the objective of operating in coordination with the Philadelphia area companies, but instead, lend themselves to operations by separate groups of operating men carrying on its functions as a unit";
- (c) that since Luzerne "looks to a non-system engineering corporation and to investment bankers for engineering and financial services, the holding company advice as to operating policy and matters of finance is a check or partial overlap of the services rendered by others and therefore there is no showing that removal of the holding company function will result in the loss of substantial economies to the particular company";
- (d) that although there may be economies through common purchasing, Luzerne is substantial in size and "there is no reason to believe that any such economies" are "necessarily dependent upon continued control by U.G.I."

The commission tentatively concluded that Clause A could not be satisfied and accordingly retention was precluded.

After noting that Erie County Electric Company²⁵ was located 300 miles from the Philadelphia area and separated by non-system companies, the division stated:

"combined operations of the properties in the two areas are not practicable nor can there be effective utilization of common operating personnel. . . . There appears to be no basis for concluding that there would be a loss of substantial operating economies if Erie County Electric Company were oper-

ated other than under control of U.G.I. for it is believed that the Company is such that operation as a self-coordinated unit or as a portion of some other system operated in that area would afford it, at a minimum, the economies which might arise from control by U.G.I."

The commission tentatively concluded that the standards of A and C could not be satisfied and, accordingly, retention was precluded.

The gas properties within Pennsylvania were next considered to determine whether they could meet the standards of Clauses A and C. In applying the A standard, the division noted that:

"the operating problems of the gas companies are essentially distinct from those involved in electric generation, transmission, and distribution, and require a specialized knowledge for each type of operation. . . ."

In applying the C standard, the division further noted that:

"co-mingling of electric and gas operations in a single company tends to complicate determination of rate bases and separation of operating expenses for each distinct utility operation."

The division noted that through sheer size and complexity arising from the combination of electric and gas properties extending into several states, the effectiveness of regulation may well be impaired, and the advantages of localized management of each function would be handicapped.²⁶ In its tentative conclusions the commission stated that it appeared unlikely that standards of Clauses A and C could be satisfied and that, accordingly, retention is precluded. However, the commission has not reached a final decision as to whether the gas utility properties in the Philadelphia area may be retained as additional systems

²⁴ Report, p. 113.

²⁵ The Erie County Electric Co. (total assets, \$6,950,000; gross revenues, \$1,620,000) has a steam plant of 34,000 kw. capacity, generates its entire supply, reports

no intercompany transactions, and has its own operating staff entirely independent from the other associated companies (Report, pp. 54, 55, 115).

²⁶ Report, p. 108.

under the A and C standards.

(4) *Properties Possibly Affected by Pending Applications.* The Hartford Gas Company and the Public Service Corporation of New Jersey have filed applications for orders declaring them not to be subsidiaries of the UGI. The commission held that, if the applications were granted, retention would be precluded by the standards applicable to interests in other businesses.

If Hartford Gas Company were held to be a subsidiary, retention would be precluded by Clause B. If Public Service Corporation of New Jersey were held to be a subsidiary, retention would be precluded under Clauses A and C.²⁷

(5) *Properties Precluded by Other Business Standards.* In applying to other businesses and interests the pertinent standards of 11(b)(1) (in accordance with the interpretation discussed above) the commission tentatively concluded that:

(a) Businesses conducted by subsidiary companies of the United Gas Improvement Company other than those as to which specific reference has been made, are not reasonably incidental or economically necessary or appropriate to the opera-

tions of the integrated electric utility system, and

(b) Present holdings of the U.G.I. system in securities issued by public utility companies or public utility holding companies other than those included with such integrated public utility system, are not reasonably incidental or economically necessary or appropriate to the operations of the holding companies retaining the integrated electric utility system.²⁸

Therefore retention of those businesses and interests was precluded.

(6) *UGI Divestment of Properties.* Subsequent to the commission's tentative conclusions, UGI has sold Connecticut Light and Power Company,²⁹ has negotiated for sale of the scattered gas companies,³⁰ and is considering further action to be taken to divest other properties and interests³¹ in order to confine its operations primarily to those in the Philadelphia area. Although the divestment program may eliminate approximately half of the UGI's previous consolidated assets, UGI will be able to retain the heart of its income-producing properties.

Application to Commonwealth & Southern

The operations of Commonwealth and

²⁷ The Public Service Corp. of New Jersey subsidiaries have electric facilities valued at \$324,000,000 and furnish electric service to a population of 3,190,000. The New Jersey operations are not related to those in the Philadelphia area for financing, personnel, or any operating function except interchange of excess energy. The division stated: "the combination of the two properties under common control would plainly present a situation where, from the geographical scope of operations, as well as their magnitude and complexity, the problems of efficient operation, localized management, and effective regulation would become acute."

²⁸ This would exclude interests in the Public Service Corp. of New Jersey and the Hartford Gas Co. if found not to be subsidiaries, and large UGI investments in the common stocks and preferred stocks of Commonwealth and Southern, American Water Works and Electric, Engineers Public Service, Electric Bond and Share, United Corporation, etc.

²⁹ UGI first considered sale of the Connecticut Light and Power Co. after the commission tentatively con-

cluded that Clause B precluded retention. UGI's president stated: "There is reasonable prospect of . . . being able to dispose at this time of the securities involved at a satisfactory price . . ." The tentative conclusions did not indicate the method to be used for divestment, but a subsequent order approved the public sale of the securities through underwriters. (Release No. 2687; *New York Times*, March 26, April 7, May 5, 1941.)

³⁰ The commission ordered UGI to dispose of securities issued by those companies (Release No. 2692).

³¹ "Divorcement of the gas properties in Pennsylvania from U.G.I. . . would not necessarily mean that any one company . . . would have to fend for itself, for, except as to those units which can stand alone, economic forces undoubtedly would result in their common ownership and operation. Such a result, if desirable, likewise could be accomplished by U.G.I. itself by the transfer of such properties to a separate company with any needed system executive skilled in such operations, followed by divorcement of that company from U.G.I." (*Report*, p. 108.)

Southern Corporation,³² in contrast to UGI, are not concentrated around any single metropolitan center, but are instead divided into two large areas. The northern area (Michigan, Illinois, Indiana, Ohio, and Pennsylvania) includes properties which are for the most part scattered and neither contiguous nor interconnected. The southern area (South Carolina, Georgia, Alabama, Mississippi, and Florida) includes utility properties which cover contiguous areas, are interconnected with each other, and interchange power between companies and divisions. In this case application of the size limitations of Section 2(a)(29) and Clause C was of crucial importance.³³

(1) *Division Application of Size Limitations to Southern Properties.* The division first sought to determine whether the integrated electric properties in the south constituted a single integrated system under the standards of Section 2(a)(29) quoted in part below:

"... which under normal conditions may be *economically operated* as a single interconnected and coordinated system confined in its operations to a *single area or region*, in one or more States, *not so large* as to impair (considering the state of the art and the area or region affected) the advantages of localized management, efficient operation, and the effectiveness of regulation." (Italics added by division.)

The division inferred from the statutory definition that "any single integrated

public-utility system must be subject to definite maximum limitations in size, regardless of physical interconnection and coordinated operations." It observed that "those limitations were in terms of the economic impact of large scale operations upon the localities and communities where the operations are conducted" as well as in terms of operating efficiency. The division held that the area limitation of 2(a)(29) could not be met by the southern operations which extend over an area of about 500 miles from east to west and 300 miles from north to south, covering approximately 111,000 square miles in which approximately 5,300,000 persons reside. The standards of localized management and effective regulation, the division held, further necessitated "the conclusion that a combination embracing all of the Southern properties is far too large to constitute a single integrated public-utility system."³⁴

Having determined that the southern properties did not constitute a *single* system, the division next applied the size standard for retention of *additional* integrated systems in Clause C, which requires that the combination of such systems under the control of a holding company shall meet size standards stated in terms identical to those in 2(a)(29). The division concluded that:

"since the area covered is too large to constitute a *single* system, the *combination* (regardless of into how many single systems it may be divided), is too large to be permis-

³² *Commonwealth and Southern Corp., et al.* Report of the Public Utilities Division, With Respect to the Holding Company System of Commonwealth and Southern Corporation and Its Subsidiary Companies, March 10, 1941. Statement of Tentative Conclusions of the Commission and Notice of an Order Reconvening Hearing Pursuant to Section 11(b)(1), March 19, 1941, Release No. 2626.

³³ Commonwealth and Southern had consolidated plant of \$1,001,396,000. Plant of the operating companies was as follows:

Consumers Power (Michigan) ..	\$250,989,000
Central Illinois Light	47,203,000
Southern Indiana Gas & Electric	20,168,000

Ohio Edison	122,727,000
Pennsylvania Power	18,132,000
Alabama Power	186,192,000
Mississippi Power	18,140,000
Gulf Power (Florida)	17,557,000
Georgia Power	264,157,000
South Carolina Power	23,648,000

The gas operations were relatively small and were not considered for the single integrated system. Book value as of December 31, 1939 (*Report*, p. 47).

³⁴ *Report*, p. 311.

sible of retention under common control under Clause C."³⁵

Having held that *all* the southern properties *together* do not meet the size limitations for a single system, or for a combination of systems, the division next sought to determine whether *any* major properties in the southern area, when *considered separately*, could meet the standards for a single integrated system. The division then stated:

"... the operations of Alabama Power Company and Georgia Power Company, in terms of area, cover almost the entire states. Furthermore, in terms of state-wide importance, each of these companies operates by far the greatest amount of electric assets in its respective state. Furthermore, in contrast to Michigan, both Alabama and Georgia are relatively less industrialized and a state-wide utility property can probably be said to be of considerably more *significance in the economic structure of the state*. It may well be that the electric properties now owned by Alabama Power Company or the electric properties now owned by Georgia Power Company, *in either case* are too large to constitute a single system in Section 2(a)(29) or to be capable of retention as a combination of systems under Clause (C) or Section 11(b)(1)."³⁶ (Italics added.)

Without deciding whether the electric operations of Alabama Power Company or Georgia Power Company within their respective states in either case constitute single integrated systems, the division for purposes of analysis assumed that each could be considered separately as a single integrated system.

(2) *Commission Conclusions Regarding Entire System.* After considering the division report the commission tentatively

concluded that *under the one-area interpretation of Clause B:*

(a) If Consumers Power Company³⁷ (located in Michigan) is considered as a "single" system, none of the southern properties and none of the properties located in Illinois or Pennsylvania can be retained;

(b) If Alabama Power Company is considered as the "single" system, none of the northern properties and none of the properties located in South Carolina can be retained;

(c) If Georgia Power Company is considered as the "single" system, none of the northern properties of the system and no property located in Mississippi can be retained;

(d) Properties of Ohio Edison Co., located in the neighborhood of Akron and Youngstown, Ohio, are interconnected with and form a single integrated public utility system with the electric properties of Pennsylvania Power Co. Consequently, since the Pennsylvania properties may not be retained under common control with any property located in Michigan, the eastern properties of Ohio Edison Company may not be retained under such control within the requirements of Clause (B), unless they are separated from the Pennsylvania properties, a result which would not appear economically sound.

In applying the *size standards of Sections 2(a)(29) and Clause C of Section 11(b)(1)* the commission's tentative conclusions stated:

"... We do not deem it necessary at this time to suggest ... whether the properties now owned and operated either by Consumers Power Company, Alabama Power Company, or Georgia Power Company, are as to any one of these states, too large. ... It suffices for the present purpose to reach the tentative conclusion that each of these state-wide areas either exceeds, or in any

³⁵ It appears that the division construed "combination" to refer to all the southern properties, rather than just to properties in addition to those which might be included in a single system.

³⁶ Report, p. 312.

³⁷ Consumers Power Co. serves an area covering about $\frac{1}{4}$ of the state and accounts for approximately 40% of revenues and residential consumers of privately

operated utilities in the state. The position of Consumers Power Co. is somewhat different from that of Georgia Power Co. or Alabama Power Co., "both because of the presence of other large utility companies in the state and because the relatively greater industrial importance of Michigan renders a state-wide utility company of less proportionate influence in the state as a whole." (Report, p. 308.)

event approaches, the maximum size which can be retained. . . . Each of these three companies serves an area over the major part of the states served. Even within such areas it may be difficult to find that management can be localized, or to conclude that regulation can be effective over companies which dominate whole states. In any event, we conclude that *no substantial amount of utility property may be retained under common control with properties now constituting either those of Consumers Power Company, Alabama Power Company, or Georgia Power Company.*" (Italics added.)

"... Because of the distance separating [the northern properties] and the lack of present interconnection or coordination between them, no combination of any of these properties may be retained under common control consistently with the statutory requirements of localized management,³⁸ efficient operations, and effective regulation."

In applying tentatively the requirements of *Clause A*, the commission stated further:

"... Each of the northern companies have their own officers, . . . are operated separately, and are not coordinated in their physical operations. . . . None of the properties of those companies could be retained as an 'additional system' to those of Consumers Power Company, or as additional systems to each other, under Clause (A)³⁹. . ."

Under the standards for *other businesses and interests* the commission tentatively concluded that the system's other businesses cannot be retained. The commission further stated:

"The Commonwealth and Southern Corpo-

ration (New York) is a mutual service company rendering services to all of the various subsidiary companies of the holding company system. In view of the conclusions hereafter reached, we conclude that the business of this service company, as presently constituted, is not reasonably incidental or economically necessary or appropriate to the operations of any of the utility properties. . . ."

The combined effect of the separate tentative conclusions under each of the standards discussed above was summarized by the commission in the following words:

"... if the property of Consumers Power Company is considered as the 'single' integrated public-utility system, the Commonwealth and Southern Corporation can retain no other properties; that if the 'single' system is located in Alabama, no other properties can be retained with the possible exception of those located in Mississippi and Florida; and that if the 'single' system is located in Georgia, no other properties can be retained with the possible exception of those in South Carolina. From this it would seem to follow that the Commonwealth and Southern Corporation cannot continue to control more than one of its major units of property. . . ."

(3) *Subsequent Action by Commonwealth and Southern.* Commonwealth and Southern has recently indicated that, as a result of the commission's tentative conclusions, it plans to dispose of the northern companies.⁴⁰ The company

extent required it is of course necessary to consider in each case the size of the area or region in order to determine whether localized management exists as required by the statute." (Report, p. 310.)

³⁸ Except that the interconnected Pennsylvania-Ohio property can be retained as additional systems to each other.

⁴⁰ Plans disclosed at shareholders' meeting by Justin R. Whiting, President, and submitted to the commission on July 2, 1941. The plans contemplate that the securities issued by the northern companies owned by Commonwealth and Southern will be distributed to its preferred stockholders. The commission has not yet indicated whether the proposed method of divestment may receive its approval. Mr. Whiting also indicated

(Footnote 40 continued on page 435)

³⁸ The division report stated: "With particular reference to the interpretation of the phrase 'localized management,' it appears impracticable to formulate in advance any general standard for interpretation. However, generally speaking, localized management would seem to mean that the persons charged with the responsibility of management be located within the area served and that the headquarters of the management be located within the same locality where customers of the company reside. In other words localized management may be characterized as being the opposite of absentee management. . . . A further question is presented as to whether management is localized as to all of the operations within such area. Obviously, if the size of any such area is too large, such management will not be localized. To the

also hopes to develop plans for a separate mutual service company for the northern companies, and another for the southern companies.

Application to the North American System

The North American Company⁴¹ has geographically diversified investments in large and self-sufficient metropolitan operating companies. It owns utilities serving in St. Louis, Cleveland, Washington, D. C., and the Wisconsin-Michigan area, including Milwaukee. It also has large additional investments in the Detroit Edison Company, the Pacific Gas and Electric Company, and the subholding company system of North American Light and Power. In the integration proceedings for that system, the major problem was: "Can the North American Company retain control of a combination of the St. Louis, Cleveland, and Wisconsin-Michigan properties?"⁴²

Since the North American Company had not requested the commission to prepare a statement of its tentative conclusions, the proceeding was conducted by hearings. The opposing contentions of the company counsel and counsel for the Public Utilities Division relating to that problem will be summarized briefly below:

(Footnote 40 continued from page 434)

that Commonwealth and Southern wished to continue to own and operate the entire southern group as an integrated system. (*New York Times*, June 19, 1941, July 3, 1941.)

⁴¹ Consolidated assets aggregated \$939,698,000, as of December 31, 1939.

⁴² The company and the commission did not seriously dispute the fact that the combination of these properties was not a single integrated system, or that each separate electric utility did constitute a single integrated system. North American has been disposing of interests in the Washington group, and omitted it from certain arguments.

The subholding company, North American Light and Power, presented a special problem on dissolution which can only be noted briefly here. Prior to completion of commission action, the North American Co. proposed to

(1) *North American Counsel's Contentions*:⁴³

(a) *Under the A Standard*: that the North American subsidiaries had secured "substantial economies" from the holding company's assistance in financing, advice, assistance in accounting, secretarial, and corporate matters; and sponsorship of the interchange of information, experiences, and personnel between the operating subsidiaries. "Assistance of this character could only be rendered by North American itself because . . . the essential elements in the value of advice are the background gained through long acquaintance with the problems of the particular property, the broader experience of the holding company executives gained through dealing with the problems of the various companies, and common financial interest."

(b) *Under the B Standard*: that "The middle states or Middle West . . . constitutes a single economic region and that St. Louis, Cleveland and Wisconsin systems are all . . . within such single economic region."

(c) *Under the C Standard*: that the efficient operation, localized management, and effectiveness of state regulation for each of the separate groups was not in any way adversely affected by common ownership and control; and that the three-system combination was not unusually large in comparison to total operations in the states served, operations by federal power projects, operations of large industrial corporations, or the operations of "independent" utility systems in large cities.

(2) *Division Counsel's Contentions*:⁴⁴

(a) *Under the B Standard*: that under the

dissolve and liquidate the subholding company, North American Light and Power Co. without seeking authority from the commission. The commission, ostensibly to protect the publicly held minority interests, took steps to prohibit the dissolution until after the appropriateness of the dissolution, the manner of liquidation, and the treatment of security holders would be passed upon by the commission as part of the 11(b)(1) proceeding. (Release Nos. 2794, 2797, 2832.)

⁴³ Findings of Fact Requested by the North American Co., May 23, 1941, Nos. 6.1 to 6.9, pp. 17-9; Brief in Support of Findings Requested by the North American Co., May 23, 1941, pp. 38-55; Reply Brief on Behalf of the North American Co., June 2, 1941, pp. 12-7.

⁴⁴ Brief of Counsel for the Division, May 23, 1941, pp. 43-52; Requested Findings by Counsel for the Division, May 23, 1941, pp. 75-84, Nos. 174-97.

one-area interpretation of Clause B, North American could not control any two of the several integrated electric utility systems (exclusive of those controlled through North American Light and Power Co.) except Cleveland and the Detroit Edison Co., or Wisconsin-Michigan and Detroit Edison, or Wisconsin-Michigan and St. Louis.

(b) *Under the A and C Standards:* that no justification can be made for the retention by the North American Co. of the control of any of these five electric utility systems as additional to any one of them as principal, or primary, system. Each one is wholly self-sufficient and the evidence on the advantages North American claimed resulted from holding company control "falls far short of indicating that any one of these great metropolitan systems could not be operated without these advantages except at the 'loss of substantial economies'." The entire North American system is the second or third largest in the United States. Each of the five integrated systems considered alone approaches the point of maximum size, and "joint control of any two of these great systems would constitute the continuance of a combination so large as to conflict with the C Standard."

It may be noted that the contentions of the division counsel were along lines somewhat analogous to the interpretation and application followed in cases where companies had requested statements of the commission's tentative conclusions. Similarly, division counsel also took the position that North American's investment in Pacific Gas and Electric, other businesses of the holding company, and other businesses of the

subsidiaries should be precluded. The division recommended to the commission that an order be entered against North American to require it to limit its system to not more than one of its present major properties.

(3) *North American Liquidation.* Accordingly, although the commission has not taken formal action to decide this case, the North American management recommended to the stockholders that the holding company be liquidated. The management took the view that:

"there is no desire whatsoever to perpetuate the existence of the North American Company unless it serves a really useful purpose, such as it has for the past fifty-one years. We cannot see how the company could serve any important purpose as a public-utility holding company if its investments were restricted to only one of the four major groups of properties."⁴⁵

Conclusions and Further Problems

The commission's action under Section 11 (b) (1) in cases to date indicates that holding companies are likely to be confined primarily to the operation of a single interconnected and coordinated public utility system (1) entirely located in one geographic area, (2) within the effective range of management from offices located in that area, and (3) limited to not more than the major part of a single state if the utility has a dominant economic position in that state. As a result, some holding companies⁴⁶ may

⁴⁵ Statement by Edward L. Shea, President, at annual meeting of stockholders. He indicated that the first steps in the liquidation program will be to retire the senior securities through sale of certain investments. In conjunction with that program, initial steps have already been taken to divest securities of the Washington and Wisconsin-Michigan groups.

⁴⁶ In addition to systems discussed in detail above, other holding company systems in the 11(b)(1) proceedings have already indicated that under present conditions they plan to comply with the commission's one-area requirements. Thus Standard Gas and Electric has planned voluntary steps to dispose of its scattered western properties, to separate out its Northern States sys-

tem in Wisconsin and Minnesota, and to confine its operations to the Pittsburgh area. Those steps and certain other 11(b)(1) requirements have been embodied in a commission order. United Light and Power (in accordance with the commission's tentative conclusions and order) contemplates divestment of scattered properties, separation of its "First Lien" operating companies in Iowa and Illinois, confinement of the remaining system primarily to properties in states surrounding the Kansas City Electric System, and corporate simplification. Middle West, Cities Service, and Electric Bond and Share have also indicated that they plan to meet

(Footnote 46 continued on page 437)

continue to operate major properties concentrated within one area; some holding companies may divide up their systems into two or more separate parts, each confined to a single geographic area; and some holding companies may be liquidated. All properties which are not within the single area in which the holding company may continue to operate must be divested. Many operating companies will therefore be freed from present holding company control. Clearly the commission has made substantial progress toward fulfillment of its statutory duty.⁴⁷

Divestment of holding company control will, however, present numerous problems. By now the commission has indicated that it will require divestment of the entire interest owned by the holding company (even interests representing less than 10% of voting control) if that is necessary to achieve actual elimination of control.⁴⁸ The commission has, however, left to the holding companies the initial problems of finding a purchaser, and proposing the methods and terms of transactions for divestment.⁴⁹ If the

holding companies are unable to arrange for disposal of properties at prices they deem reasonable,⁵⁰ they may be expected to raise issues of "forced sales" and confiscation and to challenge possible commission action requiring disposition at an "unremunerative" price. Even if the holding companies are able to reach arrangements satisfactory to them, the commission may be expected to require that the terms of specific transactions be fair to various classes of investors. It is not yet possible to determine whether the SEC will require further that divestment action be conducive to the sound future development of the operating utilities.⁵¹ There have been numerous indications, however, that the SEC conceives of its duty under the act primarily in terms of requiring divestment, and as limited by the exemption which may follow divestment. Nevertheless, it is hoped that the provision of Section 11(b)(1) for "such action as the commission shall find necessary" will be given as broad a content for constructive achievement as may be possible within the limits of the statute.

(Footnote 46 continued from page 436)
certain commission requirements. Engineers Public Service Company has not yet indicated that it will comply with the one-area interpretation of Clause B followed by the commission in its "Tentative Conclusions." (Releases Nos. 2607, 2810, 2816, 2897, 2923, 2929.) (*New York Times*, July 24, August 1, August 15, August 19, 1941.)

⁴⁷ This progress has been expedited by the decision of several holding companies that it would be more advantageous to reduce their systems now under present financial conditions than to carry a lengthy fight against the SEC to the courts and thereby incur large expenses and risk the possibility that they might ultimately have to dispose of their properties under less favorable conditions.

⁴⁸ Engineers Public Service Co. (Release No. 2897.)

⁴⁹ Possible methods include (1) sale of securities, (2) exchange of securities, (3) distribution of the securities of subsidiaries to stockholders of the holding company, and (4) sterilization of voting rights and control by the holding companies and transformation into an investment trust. The UGI divestment of interests in the Connecticut Light and Power Co. followed the first method.

The Commonwealth and Southern Corp. has planned to follow the third method in disposing of its northern group of properties.

It appears that the commission may permit public utility investment trusts only if (1) their capitalization is limited to one class of common stock, (2) they do not have any control over operating properties whose securities they hold. Under those circumstances, if the commission does not sanction geographic diversity of investment and if the investment trusts are unable to exercise the supervisory functions to safeguard their investments, the effect may be to prevent the development of investment trusts.

⁵⁰ This presents several further questions, including (1) who is to determine whether the price is reasonable; (2) by what standards and criteria shall reasonableness be determined; and (3) how much time will the commission grant holding companies to try to obtain what they believe would be a reasonable price.

⁵¹ There is some danger that in the numerous transactions which will be necessary, utilities may attempt to establish valuations and rates which will support new security issues and which will not be in accord with best accounting and regulatory practice.

Only a few effects of the commission's integration program and holding company action may be indicated at this stage of the proceedings. At present it is impossible to determine what effect removal of control will have on the operations, intercompany transactions, or management policies of operating companies. However, it is clear that certain holding companies will be able to eliminate large portions of their debentures, preferred stock, and other debt as a result of the exchange or sale of their present holdings, and that ultimately those companies may be able to confine their capital structure to common stock. Offsetting this desirable action is the fact that in many cases the operations of certain holding companies and subsidiaries will be exempt from regulation by the SEC.⁶² Accordingly, in the future those companies will not be required to meet the regulatory provisions of the act and the commission standards which have tended to eliminate abuses and assure sound financing.⁶³ Thus, although one of the main arguments for the act was the inability of state commissions to cope with certain financial problems of holding companies and their subsidiaries, certain matters regulated by the SEC

will once again be subject only to state commission control.⁶⁴ It is especially necessary therefore that there be a major improvement in the caliber of state regulation.⁶⁵

It must be noted that the commission's integration program has been devoted almost entirely to removing present holding company control, and that the commission has given little or no direct consideration to constructive operation and organization of the industry for the future.⁶⁶ Removal of control may be desirable in itself in so far as holding companies have failed to perform any constructive function which could not be performed in some better way, and may also be desirable to eliminate holding company barriers to a more constructive organization of the industry. But merely removing holding company control and supervising the divestment transactions will not in itself achieve interconnection, coordination, efficient operation, desirable management, or effective regulation.

It is particularly necessary to note that the size of the unit permitted by the SEC was determined in large part under geographic and management limitations.⁶⁷ Those units and scattered properties in many cases may be smaller than the area of greatest technical economy.

⁶² It has been estimated that upon completion of the integration and divestment program a majority of the operating companies will be exempt from SEC regulation. (*New York Times*, August 31, 1941.)

⁶³ Exempted companies (1) will not have to meet SEC regulatory requirements regarding new security issues, acquisitions, intercompany transactions and other matters, (2) will not have to meet SEC requirements under Section 11(b)(1) for divestment of other businesses and interests, or for separation of electric and gas properties, and (3) will not have to meet SEC requirements under Section 11(b)(2) for corporate simplification and equitable distribution of voting power.

Removal of holding company control may leave some operating companies with firmly entrenched managements. Possible abuses of these managements may be beyond effective check by stockholders, whereas they were subject to holding company checks in the past.

Some companies, however, will still be subject to FPC regulation on certain matters; all companies will

have to comply with registration provisions of the Securities Act of 1934; and all companies will have to recognize higher standards which have been adopted in financial markets during recent years.

⁶⁴ See n. 52 *supra*.

⁶⁵ If state regulation again proves ineffective (in spite of the fact that its task may be simpler), there may be demands for some restoration of federal regulation.

⁶⁶ It is regrettable that as a result of striving primarily for early action toward divestment, the commission has not completed comprehensive studies under Section 30 relating to the most desirable type and size of geographically and economically integrated units.

⁶⁷ In certain instances the commission also appeared to consider the fact that interconnection between properties was not through *system owned* transmission lines, and the fact that associated properties were separated by non-system properties, in reaching its conclusion that they did not meet 11(b)(1) and 2(a)(29) standards.

If those units remain as separate entities several barriers will tend to prevent the attainment of maximum technical economies. One such barrier is the fact that interchange contracts between independent units do not ordinarily provide common control which is sufficiently flexible to make the constant adjustments necessary to meet fluctuating power requirements. Furthermore, the natural pride of competent management in the operation of its own unit may tend to reduce the possibilities for wholehearted cooperation between independent units, particularly when one unit might have to make a small sacrifice to permit greater benefits to the combined group of units.

If actual integration and maximum economies are to be achieved, the facilities of a larger region should be interconnected and coordinated to meet power requirements by balanced utilization of the *lowest cost* plants, by interchange of power *at cost*, and by sound common planning for future plant and transmission-line construction. Accordingly, it may be highly desirable under certain circumstances to provide for a regrouping of some properties under

common ownership or common control.⁵⁸ At present it appears that the SEC has left to the utilities the problem of planning and negotiating desirable combinations of properties. Although the SEC does not have adequate statutory authority to initiate action for coordination, or regrouping of properties, it is hoped that the commission will give consideration to these factors in its further action under Section 11(b)(1) and in passing upon utility applications under Section 10 for approval of acquisitions.⁵⁹ Further action must be sought elsewhere,⁶⁰ however, if the objectives of constructive physical integration are to be attained.

Finally, there is a broader phase of "economic integration" which has not been adequately appreciated until dramatized by the crucial importance of power supply to problems of national defense. Today for defense, and in the future for more satisfactory operation of the economic order, the broad problem will be: How may the public utility industry be organized (consistently with democratic government) to achieve optimum coordination with the industrial and economic needs of the nation?

⁵⁸ If the group of commonly owned properties is not sufficiently large, it may be difficult to attain common control of power supply. Establishment of any common control apart from ownership may be difficult, and to be effective may require the sanctions which can be attained only through a grid-system or governmental authority. In some areas further coordination between private and government power projects may be desirable. Significant progress toward these ends may be made in current defense coordination of power supply.

⁵⁹ Section 10 provides in part under subsection (c) that the commission shall not approve "(2) the acquisition of securities or utility assets of a public-utility or holding company unless the Commission finds that such acquisition will serve the public interest by tending towards the economical and efficient development of an integrated public-utility system"

⁶⁰ Requirements for interconnection and coordination are within the scope of FPC authority, and constructive coordination may be promoted or required by defense agencies.

Urban Disintegration and the Future of Land Investments

By GORDON WHITNALL*

HISTORY does not record the time when land was not considered the one permanent, stable thing. All human history has tended to revolve around the possession of land and its use. When we look back to the present in the perspective of years to come, we shall probably realize that the apparent instability of land today is actually nothing but a breakdown of a more or less artificial structure of value that man, in his shortsightedness, has erected upon land. Land itself is doubtless as stable today as it ever has been, and it always will be. Spectacular upsets in the equilibrium of man's existence are not evidence of a breakdown in nature's laws, but rather of the frailty of human institutions and practices. Nature's laws seem to be unchangeable and basically simple. It is man's ignorance of, or his ignoring of, these inescapable forces that has always led to complications and often to disaster.

These observations are made because of the present great and justifiable concern over an apparently complete upset of the foundation upon which much of the financial structure of investments in land has been built. This is especially true of commercial property in the business districts of our American cities, and to that phase of the problem attention is particularly directed here. It has been said that the only permanent thing in the world is change. However, the usual gradual processes of evolution have seldom been replaced by such rapid and

spectacular changes as those now occurring in cities. They have become almost universally apparent in the last very few years. To a few who have specialized in studying cause and effect as they bear upon urban development, it became quite clear at least two decades ago that the then orthodox type of city and its functioning were developing within themselves a germ that would ultimately destroy its host, or at least cause such substantial changes as to force a radical re-evaluation of most everything that makes a city. What began as a very limited study of these phenomena has recently been accelerated, until now nation-wide attention is being focused upon the problems of urban disintegration and decentralization.

The word focus is used advisedly because many and divergent interests are concerned with the tobogganing valuations of urban property: interests concerned principally with real estate from the standpoint of lending agents; property owners; proprietors and managers of large department stores and other downtown enterprises that have been built in complete reliance upon the permanency of the conditions at the time they originated; public officials clothed with the responsibility of performing an ever increasing number of essential public services, the cost of which must be derived principally from the flow of urban taxes which are now rapidly drying up through the spectacular shrinkage of values in the commercial centers of American cities; and, lastly, the public itself which finds its habits of living being completely rearranged.

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I have already used the term "evolution" and, as an introduction to the relating of such limited facts as we already know, it may be well to state my personal opinion that the phenomenon which we are witnessing is a logical phase in the process of evolution and, being such, should not properly be referred to as a disease but rather as a natural metamorphosis, the completed results of which will form a new order that will persist until the influence of human invention brings about subsequent changes. It seems highly questionable whether the stream can be reversed and made to run back uphill in order that we may return to the conditions that we have so recently left. We might even ask whether we would desire to go back, assuming we could. Land is still permanent; it is still stable. It is but man's temporary structures erected upon that land which are apparently decaying and tumbling. If that statement were all, it would be a gruesome and hopeless picture, but out of processes that are being observed are evidences of an even firmer foundation than has heretofore existed, and also a faint outline of a new structure that is rapidly taking form.

The Problem in a Specific Setting

Although the trends here described have been found to be nation-wide and present in practically all cities regardless of size and to differ only in degree, I prefer to select one city for illustration—namely, Los Angeles.

First it is necessary to define two very important words already used—"disintegration" and "decentralization." Decentralization of business was the first to make its presence known, probably because it came into being partially through processes that did not necessarily involve disintegration. In Los Angeles, which for many decades has

been expanding spectacularly, many new business establishments were naturally introduced. Without at the moment discussing why, no small proportion of these new establishments located originally in what began as crossroads, then developed into neighborhood centers, finally evolving in many instances into major satellite communities, some of them but parts of the parent city and others assuming a political identity of their own as separate incorporated municipalities. Functionally, however, it was like a great solar system with these satellite centers distributed around the original metropolitan nucleus.

But in time visible disintegration occurred at the metropolitan center. The first stages were not obvious. They took the form of branch banks in outlying sections. Other business institutions established branches in outlying districts. These really constituted a form of disintegration in that they represented substantial portions, if not all, of the increase in volume of business of the parent and central plant. Still later, individual business establishments, finding it increasingly difficult to operate in the central area, picked up and moved bodily to outside locations. Others apparently had insufficient strength left to move and just laid down and died. Except for the latter category, all of the others represented not only disintegration of the central area, but contributed substantially to the process of decentralization.

A few figures will make the picture sharper. Between 1930 and 1940 Los Angeles increased in population by approximately 260,000. At the beginning of the decade the average building height within the recognized central business district of Los Angeles was $4\frac{1}{2}$ stories. At the end of the decade, in identically the same area, the average building

height had shrunk to $3\frac{1}{2}$ stories. Another spectacular figure is 60%, which represents the actual shrinkage in the official assessed valuation of all properties comprising this same area. That is an actual picture of the process of disintegration in the fifth largest city in the United States. From such data as have already been accumulated, it is clear that this example is not unique in the nation.

But, one may ask, how can that be, if during the very period of this physical and financial disintegration the city in which it occurred grew in population by over a quarter of a million people? In fact, the total volume of business transacted in the metropolis was substantially more in 1940 than in 1930. However, the transacting of the business occurred not in the original center but rather in the many satellite centers distributed in all directions. As we pass from a mere recitation of what has happened to a consideration of why it has happened and to where it is leading, it may be observed correctly that the phenomenon described within the original business center has already begun to be repeated in varying degrees in certain of the larger satellite communities.

Furthermore, it was observed some time ago that of the total number of people who came to the central district daily, the proportion who arrived by common carrier showed a decreasing trend, whereas the proportion who arrived by private automobile showed an increasing trend. It was also learned that over a period of time the total number of persons brought into the central district during a normal day had declined. When almost two decades ago it was first observed that the proportion of the total number of people coming to the business district by automobile was increasing and the difficulties of that same central district were

even then beginning to become apparent, the conclusion was that a remedy for the situation would be found if the capacity of the streets serving the central area were substantially increased. Consequently, for those days a rather pretentious program of street opening and widening was undertaken, involving an aggregate cost of more than two hundred million dollars, which even then meant a lot of money. The last major unit of this program is only now being completed, but sufficient was finished reasonably early to cause some wonderment and no little concern over the discovery that the trend in the daytime population of the downtown district continued to drop.

At this point it is helpful to digress in order to recall briefly the course of the value of property, particularly of such property as makes up the downtown district of my city. What we call value is a reflection of the relative earning power of such property. That earning power, in turn, is determined by buying power, but buying power which can and does get access to the property and thus patronize whatever is located upon it. Except for the amount of buying power which arrives exclusively by shoe leather, and that is always a negligible item, we find that in many years past all of it arrived by common carrier—i.e., by street car in Los Angeles. Then a constantly decreasing number came by that means and more came by automobile, and I repeat, we discovered that the total of the two was less than it used to be. To remedy this situation we tried, as I related, to syphon more buying power into the district by increasing the capacity of the channels over which they rolled, and still things got worse.

This brings us back to the next discovery—namely, that the automobile trip into the central district proved of no avail unless, having arrived, the occu-

pant could find some place to leave his vehicle while he proceeded to realize the purpose for which he made the trip in the first place. In other words, the capacity of the downtown district in years past was measured in units of human beings brought by common carrier in large loads and dumped, whereas today the capacity of the business district is measured in increasing degree by its ability to absorb the vehicles that the patrons use in arriving. In short, the new urban problem is the problem of terminal facilities or, parking.

Fluid Population

Of all the possible contributing causes of present central-district ills, at least one of the outstanding factors is the automobile. Probably no single mechanical factor has contributed so vast a change in our way of living as has the automobile in the four decades since its introduction. Prior to the day of the auto, a population was relatively an immobile mass. As a mass, it never moved beyond the limited radius of shoe leather. Next came the era of mass transportation and we are interested here in mass transportation in urban centers. The very nature of pre-auto transportation made it wholly inflexible. It was tied to the ground along almost unchangeable routes represented by rail lines. The evolution of an urban transit system presupposed that one end of every unit in the system would be imbedded in the hub. As a consequence, the pattern of urban movement was a tidal surge converging toward a single center at the beginning of a day and later in the day the ebb tide set in and the human mass was again spread out to its original points of origin.

Then the automobile came onto the scene. The resulting change was not rapid but, as the cost of cars went down

and their efficiency and reliability went up, they became increasingly numerous. Soon the mass of population began to be saturated with wheels until at present, in Los Angeles, a condition of almost complete saturation has been reached. The last figures available showed one car to every 2.6 persons. The significance of that condition is realized if I point out that theoretically, and assuming sufficient highway capacity, the entire 1,500,000 population could be evacuated over night and no one would have to sit in the back seat. That means that literally the population has assumed much of the quality of a fluid. A fluid flows and tends to find its own level. One cannot pile an unconfined fluid.

This new quality of urban populations has produced most profound changes in individual and mass habits. It is said, however, that the unit cost of that form of transportation is too great to persist and that no community can rely upon it as a permanent factor. That, however, is theory. The fact is that the elements of independence and convenience inherent in the automobile have given to populations a sense of freedom never before enjoyed and an independence which is apparently willingly paid for. But, basically, there is serious question concerning the validity of the charge that this new form of transportation involves a unit cost too high to permit its continuance. Unquestionably, the cost per passenger-mile traveled by automobile is greater than the passenger-mile travelled by rail. But, if the *number* of miles travelled is substantially reduced, then the aggregate community cost for mass movement is at least materially affected, if not actually equalized. Given a fluid population equipped to the saturation point with wheels, and an adequate network of thoroughfares upon which to roll in *any* direction, we have a leveling

off process that is important. Given next a wide flung distribution of commercial facilities that are as well distributed as the population itself, the required distance of travel to obtain *any* service or commodity is materially reduced when compared to the distances formerly traveled when everything was located in a single center, no matter how far it might be from the fringes of population dependent upon that center. At any rate, movement habits of urban populations have been measured to a sufficient extent to suggest the validity of this premise. On top of that we have the unquestioned phenomenon of disintegration of centers and the related phenomenon of decentralization. And, inasmuch as we have a fluid population—and a fluid always follows the line of least resistance—it would seem that we are confronted with a simple example of physics that is not susceptible of much debate. Our real problem is to discover how many of these phenomena are functionally, economically, and socially sound. Then, when we shall have made those discoveries, our course will probably be to employ them rather than to combat them.

Experimentation

Experiments in providing terminal facilities throughout the country are many and varied. A very few efforts in that direction may be credited to cities officially. Most trials, however, arise from the initiative of private business enterprises.

The most comprehensive approach to the problem of which we have knowledge to date is in the legislative program already accomplished by the state of California where authority has been granted to cities to employ practically any means normally available to private individuals and agencies.

San Francisco has progressed well with

an unique experiment through having converted its Union Square, in the very heart of the city, into a vast hole in which it has built several stories of underground storage and then built the park back on top of it all. It is still too soon to evaluate the results.

Oakland, California, through an association of merchants in the central district, has established three unusually large public parking lots strategically placed.

The city of Fresno, with a population of about 75,000, is attacking the problem on a city-wide basis, and its program, which is fairly precisely defined, has yet to be put into actual practice. It deals not only with the central business district, but undertakes to deal permanently with the outlying centers by modern design of new developments and replanning and reconstruction of centers well established.

Los Angeles thus far has limited its efforts to study except for one minor instance in which it has approved the vacation of a street, thus consolidating two business blocks into one and carving out the entire interior of the resulting superblock and devoting it to off-street parking facilities. This project is completed and already interesting results are being observed.

Most important in the field of accomplishment, however, are the experiences initiated by private business institutions. Sears Roebuck, in the Los Angeles area, has gone to spectacular lengths in providing its own facilities for its patrons. The company is carefully observing the results in terms of business turnover, and has already enlarged facilities in certain instances. The effect upon the volume of business done after the increase of facilities has proved the increased investment fully justified.

Two large grocery chains in the West

are now making a consistent practice of providing their own facilities for accommodating the cars of their patrons. They inaugurated a new practice by placing their buildings as far away as possible from the corner of their business sites. The corner itself is devoted to auto parking. This apparently represents a complete reversal from former practices which recognized the corner as most valuable and therefore the place to locate the entrance of a business establishment fortunate enough to be at a corner. But in reality the new practice only represents a modern adaptation of an old and proven theory. When people used to approach an establishment on shoe leather, the most convenient point of reception was at the corner where the patron could enter the door from either of two directions. But today, in ever increasing degree, patrons arrive on rubber so the same consideration is now given to the vehicle that the patron uses to reach the destination. One of these two chains now places its principal pedestrian entrance facing the parking lot and not the sidewalk on the street.

Almost 15 years ago one of the larger department stores in Los Angeles established a huge branch store about three miles west of the central business district. For some years things did not go very well. That seems to be the fate of many pioneers. Now, however, that store is definitely on the black side of the ledger, and it has several branches.

Two of the larger men's clothing stores have also resorted to outlying branch stores and each has at least one branch of major importance and both of these stores are about seven miles from the original center of the city.

Another large downtown store has located one branch, almost as large as the parent store, eight miles from downtown in the Hollywood district. This

same store has recently located a second major branch twelve miles from the center and in an opposite direction in the city of Pasadena. In the latter case substantial facilities are provided for parking adjacent to the store.

Two years ago still another of the very large stores established a huge branch eight miles due west from its parent plant. Originally it devoted the better part of a whole surrounding block for parking. This proved inadequate and later it acquired another whole block adjoining. Now it finds that it has a completely self-contained plant in which terminal facilities are sufficient to accommodate a patronage large enough to keep the interior of the store encouragingly busy. When this store located there, it was almost literally in the midst of open fields and even today there are 175 vacant acres adjacent on one side, but the store is busy.

Another store, which specializes in ladies' wear and which formerly had several close-in establishments, consolidated its stores into one. For this new plant they bought a corner on one of the heaviest traveled intersections in the nation but, fortunately for them, before they built they realized there was *too much traffic*. So they acquired the opposite end of the same block, farther removed from the confusion of traffic, by leasing it for a long term of years and on that site they erected a very modern and beautiful plant. Then they bought the whole of a double length block behind this site, razed about eight mansions, paved and landscaped the area. This new store is located on famous Wilshire Boulevard, about three miles from the center of the city. The only entrance onto this western "Fifth Avenue" is one pair of double swinging doors which, in practice, are literally the employees' entrance. The patrons' entrance is at the

rear of the building where we used to expect to find alleys but where, in this case, we find a beautiful covered entrance facing a landscaped parking area as efficiently handled as an ushering system in a theater. The store is a success.

Several new community centers have recently been completed where the developers have designed them for commercial purposes and where the area set aside for terminal facilities equals, as a minimum, the area covered by the buildings served.

All of these are but straws that show which way the wind is blowing. All are still in the experimental stages but out of these trials have come results sufficiently definite to offer the foundation for clear analysis and later improved practices.

What We Know about Parking

The road ahead is probably a long one. But we have already travelled far enough along it to have learned many things that are proving helpful. We know, for instance, that there are two distinct types of parking. The term "static" descriptively defines one of them. "Dynamic" equally well distinguishes the second.

Static parking is that which is incident largely to the needs of the business proprietor, the executive, and the employee who require day-long accommodations. Dynamic parking, on the other hand, is that which results from patron circulation and turnover. The latter is an asset; the former a liability.

We also are aware that static parking will submit to a reasonable degree of inconvenience and monetary cost. Dynamic parking objects to both. This knowledge possibly opens the way to at least a partial answer to the question of how ample parking facilities may be provided. The question is repeatedly raised

as to whether the obligation to provide terminal facilities is one that should be privately met or be assumed by public agencies, probably by the city itself. There are logical reasons for beginning with the premise that static parking will probably develop naturally into a private responsibility and that dynamic parking will gradually be recognized as a public obligation. Much can be said on this subject, but limitation of space requires that the story be limited largely to a recitation of the many other factors involved in the problem of disintegration.

In many places the open air parking lot—privately operated for pay—is a very interesting phenomenon. There is sufficient evidence to place it in the category of the "jitney" of yesteryear. It is purely a makeshift, but one that has grown in response to a need which it only partially meets, and that in a manner which presages its own destruction. It is, however, a stage in the evolution of urban practices that assumes great importance, not as an answer to our problem, but as a revealer of many important truths.

A concomitant of the commercial parking lot is the prevalent practice in many communities of what can be called subsidized parking. By that is meant the practice of business establishments contracting for wholesale service to its patrons through the medium of "validating" the parking check of a patron at the time of paying for a purchase. The proffering of the validated check to the parking lot attendant not only secures the return of the owner's car, but it is accepted in lieu of the customary parking fee which is later paid by the business house at the time of a periodic accounting. About two years ago the president of one of the large Los Angeles department stores stated that his es-

tablishment had paid "over \$35,000" in cash during the calendar year just then closed for validating parking checks for patrons. At the time I mentally added the probably greater sum paid in cash directly by the patrons who did not bother with validation. Then to the sum of those two I added the still greater amount *not paid* by the increasing tens of thousands of potential patrons who no longer subject themselves to the inconvenience and delay of the central district. The result was an astronomical figure that represented a millstone around the neck of downtown business which is trying to keep its head above water.

But returning to the subject of known factors, we also know that the capacity of terminal facilities is not measured solely by geographical area. So far as dynamic parking is concerned, it is turnover that counts. Sometimes huge areas involve an aggregate number of cars so large as to make ingress and egress so inconvenient and difficult as to decrease seriously the turnover—even to the point where the investment is not justified by the service rendered.

We also know that the element of convenience limits the physical form of facilities to not more than one story above ground or one story below ground and the ground level itself. "Free" parking, which is dynamic parking, must be patterned so as to accommodate the woman driver because she does not willingly indulge in driving acrobatics. Therefore, to go higher or lower than one floor involves service of attendants and that is precluded for dynamic parking. It will undoubtedly prove practical, upon further experience, to resort to facilities employing attendants for static parking, using the less convenient accommodations and thus partially paying for the needs of dynamic parking in the balance.

We are also quite certain that, just as past practice made the entrance to an establishment attractive and convenient for the pedestrian, so now we must do the same for the patron when he or she comes on rubber. This means that whatever facilities we provide dare not be hidden away as a makeshift in an alley or its equivalent. In fact, we have already progressed in our experimentation to the point where we realize that parking facilities on a community basis must be designed integrally as a part of the whole in a functional capacity just as we provide streets and building entrances.

As one argument against depending upon private initiative, we find that to expect each business establishment to provide its own exclusive facilities would be extravagant. Not only would the extravagance be in first cost of land, and building, if any, but the practice would also prove inefficient by reason of the excess area employed and the consequent scattering of business in a manner to destroy the convenience of compact groupings. Basically, the reason for this assertion is that each business usually has a period of peak demand for such facilities and seldom does a group of business houses develop their peaks at the same hour. Thus if each must individually provide for his own peak, there will always be a large dormant capacity; whereas, if the facilities were provided on a community basis, any excess necessary to accommodate one peak could, to some extent, spread its service. In the same way groups of uses could share. In one such instance in a local community, the combined facilities are already used almost to capacity by evening theater, bowling alley, and restaurant crowds without any inconvenience to the other types of daytime business that also use the same facilities to capacity during

daylight hours. But if each of the two groups were required to provide separate facilities, not only would the investment be doubled, but so much area would be used for parking that the business houses would become so isolated as to destroy the attractive compactness that now makes the center convenient and successful.

More is already known about the technique of providing and designing parking facilities than can properly be included in a discussion of the broader problem in which parking appears as only one factor, although a very important one. However, one more detail warrants mentioning and that is the matter of space per car. An early standard per-car unit was 200 square feet. That may suffice for static parking where cars are handled by expert attendants and where the cars are stored several deep in rectangular tiers. But 200 square feet proves inadequate for self-service accommodations, which is typical of dynamic parking. Some experimentation employed a car unit of 225 square feet. That was better but it still involved more expert manipulation than the woman driver was willing to assay and, although it served the fender industry well, it did not prove successful for the business establishment using it. Later experience demonstrates quite conclusively that 250 square feet per car provides that degree of convenience and safety which assures maximum turnover. To provide less would be about the equivalent of furnishing one large elevator for a big building. The theoretical capacity might be sufficient but the long wait for round trips of a single cage would soon discourage the tenants of the building and their clients.

It will also bear repetition that the possession of an automobile and a right-of-way on which to operate it will prove of little practical value unless adequate

facilities are provided for caring for the car at both ends of a trip when the car is out of use. When one stops to consider all of the facts, it appears to be a prodigal waste of public funds to construct and maintain expensive streets and then use substantial portions of them for impounding cars out of use. Open advocacy of a policy that cities should provide free garages for all cars would bring a deafening hue and cry from taxpayers. Yet that is exactly what is done in large degree except that the city does not also provide roofs over the parking facilities. But more serious than the mere monetary cost of that type of public "garage" facilities is the destruction of the utility value of the streets in what should be their sole purpose—namely, travel. If parking facilities are to be publicly provided, and it seems that they must be, it would involve far less investment to provide them in the form of off-street areas and it would also involve less upkeep and improvement cost by reason of the less expensive type of surfacing required.

Data on these and other related factors are rapidly being accumulated. It should not be long before proven standard practices will be evolved.

What the Future Holds in Store

With the present-day kaleidoscope of vacant buildings, tobogganning values, blighted areas, and gasoline fumes one might well ask where they are all leading. Data already gathered, analyzed, and released indicate with little doubt that excessively high buildings over a period of time have quite consistently proved to be failures. The planners have a term to express the situation resulting from excessively high buildings. That term is "load on the land." As we now observe the decadence of formerly thriving and throbbing urban centers, the student whose training permits him to isolate a

phenomenon into its parts discovers that commercial districts as we have known them may also be expressed in terms of "load on the land." So far as studies have progressed, there is sufficient evidence to suggest that the load on the land typical of commercial centers is proving to be excessive. One might point out that it was not always so, but the likely answer to such a claim is that, although the former load on the land may have seemingly operated satisfactorily, to the degree it did so, it resulted from artificial stimulus. In fact, one might almost say that the commercial organism of yesterday was maintained in a large degree artificially through hypodermic injections or blood transfusions, the hypodermic needles for which were elevateds and subways and other forms of inflexible transportation.

Now that the life blood of commerce, which is population, has become largely uncontrollable through its newly acquired quality of fluidity, we discover that the physical shells of commercial districts into which circumstances formerly forced population contrary to most natural laws find themselves today only partially filled and thus rendering only a fraction of the service of the past.

Business districts have many qualities in common with mechanical devices, such as typewriters, the principal one of which is that they operate largely within the limitations of mechanical law. The one respect in which business districts have not recognized the limitations of mechanical law is that, when they had attained that size of a "standard typewriter" which would assure maximum service at minimum cost, they did not stop there. Business districts were not designed by engineers. They are an accumulation of a multitude of contributions by as many agencies, each of which provided its own building unit. In many

instances they finally assumed the proportions of gargantuan juggernauts which maintained a semblance of operating efficiency so long as they were subjected to artificial stimulus. But now these seem to be revealing themselves for what they really are. Communities in the larger sense are today quite materially like a business which is equipping itself with several typewriters. Of course I am speaking of decentralized business centers. To deny that there is at least inherent in this trend a certain degree of justification and desirability is to deny the reality of physical and mechanical law. The question is to determine where these trends are leading and wherein, having discovered these causes, we may employ these natural forces to our advantage rather than to our detriment.

The very term "center" or "business" district means that it is a locality where centers the process of dispensing services or commodities. Commerce, as distinguished from industry, is primarily and essentially a process of distribution. If distribution does represent the essential community service that it purports to do, then may it not be said that decentralized business is better serving that purpose than did concentrated business? Concentrated business in reality was apparently lazy business whose function was principally to concentrate the services and commodities at a center from which they could be distributed. But beyond that, business did not formally distribute in that it required the patrons, in astronomical numbers, to go to the center and then do their own distributing. One of the characteristic differences of the decentralized form of communities from the formal centralized type is that one new phase or step in distribution has been added to the responsibility of business itself, and the town that is the vehicle with which and through which

business operates is providing the physical plant in a manner to serve the purpose.

Just one more illustration. The difference between a city and open rural areas is that the acreage of the city has been divided with mathematical precision into smaller monotonously uniform parcels of land called city lots. These lots are to accommodate every type of activity to which land is put in cities, and these consist of three broad classifications—residential, commercial, and industrial. The manner in which each of these three types of use employs land is, for the most part, radically different, yet if, conceivably, our city lots which are as alike as dominoes are ideal for residential purposes, they could hardly be as suited for industrial purposes. The demands of business, especially in the light of our modern understanding, can hardly be best met by conditions that would be ideal for residences. Yet the same basic raw material of land is dished out in identical form to all three types of uses. Obviously then at least two-thirds of them must have their requirements compromised through the arbitrary checker board lots and sites which we make available to their use.

We have long since abandoned that practice in the realm of our buildings. History tells us that the time was, during the period of home industry, when most manufacture was carried on in the same building designed and used for residences. But not so now. Today we do not build Fords in the mansion on the hill, nor will FHA, which establishes minimum standards, insure a loan for a residence in the midst of the packing houses. But pointing out that the usual commercial structure in a metropolitan center is differently designed and used than either residences or industry is not to imply that they are as ideally designed as they

might be were the available sites and public facilities completely adequate.

All of this means, in short, that necessity has brought us to the threshold of the day when, in the design and construction of cities, just as in the design and construction of individual buildings, we are being forced to consider the whole from a functional standpoint and then to design the component parts for the specific uses to which they are to be put. Fortunately this concept is not a theoretical picture of the future. Beginnings have already been made in that direction. It is but a matter of time, and limited time at that, when not only the original design of cities but the plans for their essential reconstruction will employ this basically simple approach when this trend shall have progressed somewhat farther. We may reasonably expect to find communities assume functional characteristics that emphasize purposeful design for typical uses. This will include a sufficient number of "typewriters" strategically located to render their community services most effectively and economically and to provide for industrial areas well served with all possible forms of required transportation. All of these varied facilities are related by comprehensive plans that shall assure stability such as the shifting sands of American urban development have never before known.

One additional factor is of considerable importance. Time was in our urban development, as in our national development, when we possessed a frontier. This frontier served in both instances as a safety valve. But our geographical national frontier is gone and so too, in many respects, have metropolitan frontiers. If the expansion of cities has not reached physical limitations such as coast line or mountains, then the sheer force of "gravity" which attaches to large masses produces an equivalent to a

vanished frontier. The elimination of these safety valves has thrown metropolitan populations back upon themselves and even in smaller communities we discover that urban life is an essential feature of modern existence. We can therefore no longer physically escape. We are destined to live each with the other so long as we shall live. That means that problems from which we could previously run must now be faced and solved.

This might be a discouraging picture were it not for the fact that out of the attention we are giving to the problem we have already learned sufficiently to justify a high degree of optimism. However, the optimism does not involve a realizable hope that cities shall remain exactly as we have known them. It means, rather, that the community of the future shall further emphasize the transitional trends of the moment by being somewhat more widespread and with a universally smaller load on the land. It means that the laws of mechanics will be recognized and employed instead of combatted by resorting to a larger number of operative units. It means, above everything else, that every con-

ceivable encouragement will exist for a more permanent utilization of land by one type of use as distinguished from another. It means a gradual termination of the terrific losses that have dominated the growth and expansion of cities in the past through the scrapping of vast investments in one type of use to make way for their partial re-use by another type of use. It means, in short, that as the utilization of land shall assume ever increasing stability so too shall investments become more stable. The very definite probability exists that land and improvement investments may hope for that day in the not distant future when, although the return upon them may not be so large, they will take on more and more of the nature of government bonds that differ from all other types in the safety that attaches to them. One thing seems certain—namely, that the wildcat oil type of investment can no longer persist as a fiscal foundation for the development and operation of our American cities, and that is probably fortunate, even though the period of transition proves painful. Urban land is rapidly changing its status from a commodity to a utility.

Public Land Acquisition in Law and Practice

By H. R. BRIGGS* and A. R. MCGINLEY*

A REVIEW of public land acquisition policies and procedures and the laws under which they have been established is pertinent if public costs are not to be excessive and if the most efficient developments are to emerge from federal participation in defense and other activities for the general public welfare.

In the past, every effort was expended in transferring an extensive public domain to private ownership. In recent years this trend has been conspicuously reversed by the rate at which the public has been acquiring land for various enterprises.

After the beginning of the century the federal and state governments began acquiring land for forests and parks. Now the national government, states, counties, and cities are actively acquiring property upon a large scale for many public enterprises; and public land ownership and control have become a major function or activity of governmental agencies in the interest of public welfare for purposes such as flood control, irrigation, resettlement, housing, recent activities exemplified by the TVA; also, pending legislation may cause the emergence of the Federal Government as a participant in property acquisition for a system of cross-country routes and defense highways.

Although the demand of public welfare and the availability of federal funds have increased public land proprietorship, adequate legislative and administrative machinery have not been provided to meet the ever increasing problems which arise out of the acquisition of private property. Because statutory provisions

have been pyramided and because no general procedure exists under which private property may be acquired for all public purposes, public agencies are often in doubt as to the nature and extent of what authority they do possess.

Where property cannot be purchased, two broad powers give the public the right to take over or control for the public good the property of the individual. These authorities are the police power and the power of eminent domain. The police power deals with matters vital to public health, safety, and welfare. Courts have been quite liberal in permitting interference with the right of an individual where such questions have been concerned. Where it is not necessary to acquire land, the public often uses this power to protect a public development or the general public good through zoning, setback lines, and regulations such as those of the AAA.

The exercise of the power of eminent domain has been more restricted than the use of the police power, and too often a desirable public undertaking is prevented because of the chaotic condition prevailing in state legislation. Under American jurisprudence two definite principles have been established in regard to this right.

The first is that inherently every sovereign governmental agency has the right of eminent domain, and may delegate it to its component political subdivisions. Since the states and the Federal Government both possess this right and are carrying on joint enterprises to a constantly increasing degree, the question arises as to whether individual states or the Federal Government has jurisdiction over a particular development. In

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the case of *United States v. Certain Lands in Louisville*, 78 Fed. (2d) 684 (1935), the Circuit Court of Appeals held that the Federal Government did not have the power to take over land for the purpose of slum clearance projects under the National Industrial Recovery Act, and rejected the government's argument that Congress derived such power from the Constitution under the "general welfare" clause. Although the Federal Government has the power to tax for the general public welfare, it cannot acquire private property for any purpose other than those specified in the Constitution or implied therefrom.

The second principle of the power of eminent domain is that this power is a latent right which cannot be exercised in the absence of express laws. As a result, many states have acquired a variety of enabling acts specific in the authority granted, but lacking general provisions which might apply to all public acquisitions regardless of the purpose for which the land was being acquired. An analysis made by the Judicial Council of Michigan in 1931 disclosed 306 different eminent domain procedures in use at that time in the United States, exclusive of the special provisions of city charters. One state alone had 46 condemnation laws.

Thus, because enabling legislation has been enacted in the past for specific purposes, existing laws do not govern the acquisition of land for many of the present governmental activities; and eminent domain principles which have been established in bygone years are unsound when applied to current situations. Land acquisition for highway rights-of-way illustrates legal and administrative difficulties which have had to be overcome and others which will have to be surmounted if future programs are not to be handicapped.

Comprehensive surveys have been made of land acquired for highway rights-of-way in the states of Wisconsin and New York. For lands necessitating court action, Wisconsin has at least three, and New York four basic laws which specify the method of compulsory acquisition for state highway purposes. These laws were enacted primarily to grant the right-of-entry so that construction would not be delayed pending adjudication of disputed cases. In the absence of such express authority the public could not enter upon private property until the court made an award of damages or settlement was reached with the property owner. This procedure often caused substantial delays in highway projects and remedial legislation was enacted. Many states, however, do not possess this authority and highway developments may be held up. The situation becomes particularly acute where the development is contingent upon the ability to proceed with construction for the entire project, and one property owner may delay the work for an indefinite period or force the public to pay an exorbitant price.

Wisconsin grants its highway department right-of-entry through the award method which consists of an official tender to the property owner of the fair amount of damages. The property owner may accept this amount, but if he rejects it, a check is deposited with the county clerk and thereupon the public may enter upon such property, and the owner is given two years in which to file suit with the circuit court.

Under condemnation authorized by the New York highway law, title vests in the public when commissioners of appraisal take their oath of office. Many New York counties make wide use of this authority through a system of mass condemnation where all parcels on a given

highway are officially placed in condemnation and negotiation is then attempted.

New York also uses appropriation under its power of eminent domain for lands acquired for parkways. Where settlement cannot be effected, such lands may be appropriated upon the consent of the governor and the

"owner may present to the court of claims a claim for the value of such land and legal damages within two years after the service of such notice and papers upon him, unless sooner brought in and made a party by such court. If brought in and made a party by such court, he may file an independent claim in respect of such land within three months from the time he is so brought in but not thereafter."¹

This system is comparable to the award method used in Wisconsin but has the advantage that the action may be instituted by either party, and may keep the property owner from bringing suit at a time most advantageous to him.

Another application of appropriation is used by the New York Department of Public Works. Under authority granted by the grade crossing elimination and similar acts, the public may appropriate all necessary property in the first instance by filing maps of such property with the secretary of state and notifying the property owner of such actions. Title thereupon rests in the public, and if claims for compensation are not adjusted by the department of public works, the owner must file suit with the court of claims. This method differs primarily from other methods of public land acquisition in that the law does not authorize the purchase of properties. Compensation is paid either through adjustment of a claim by the department of public works or by an award of the court

of claims. This procedure may well be considered as falling within the province of the police power rather than the power of eminent domain.

In addition to the enactment of laws granting the right-of-entry, legislation is also being enacted to eliminate high costs often incurred by condemnation commissions. Wisconsin has incorporated in its highway law an alternative method of condemnation, by which the highway department may refer disputes to the county judge instead of to the condemnation commission. However, in New York, only Erie County has been authorized to bring action before a court or referee. All other New York counties must use the commission system.

Although laws are being enacted to substitute other methods of compulsory action, the authority to use the commission system has not been repealed, and it has become firmly established and is widely used throughout the United States. The chief objection to this system is that delays and high costs may be incurred. The commission consists of disinterested persons appointed by the county judge. Since the commissioners are paid on a per diem basis and since the public work is subordinated to private business, no incentive exists toward expediting the conclusion of a case, and resulting costs often equal and may exceed the property cost in question. Of 70 condemnations of land acquisition for New York State highways investigated, the cost of a typical case was found to be between \$500 and \$1,500. Although the average condemnation cost was found to vary among counties, inspection showed that the highest single item was that of commissioners' fees which averaged \$314 per parcel. These costs are considerably higher where complicated urban properties are concerned. In condemnation, for one project under the Syracuse Grade

¹ N. Y. Conservation Law, amended by L. 1921, c. 206; L. 1928, c. 242, §5.

Crossing Authority, the total condemnation cost for 23 parcels was \$23,457, of which \$12,261 was compensation for services of commissioners. Investigation has shown that some highway committees would rather increase the payment to the property owner than to pay commissioners' fees.

Aside from condemnation costs incurred, a comparison of property costs of similar parcels acquired by purchase and condemnation showed that, although no great difference was found in prices paid for land, the courts tended to favor the property owner in awarding consequential damages. However, in some counties, court awards had been so unfavorable as to result in a policy of avoiding condemnation through bargaining and through meeting the price asked by the property owner.

The legal theory of value upon which compensation is to be based constitutes a serious question. Courts commonly accept the theory that property is to be considered as having an intrinsic "market" value without reference to a particular ownership and that, therefore, compensation should be determined by ascertaining the value of the property before and after the taking—the difference representing the price to be paid. Although this seems a simple and practical method, the system by which these values are determined is highly theoretical and often questionable. This value becomes further complicated where statutory provisions require the offsetting of benefits against damages. Many states, however, prohibit the consideration of any direct or indirect benefits resulting from a given development.

Another theory of value used is that which regards the damage as an injury to the owner and measures the value in terms of this injury in an attempt to make the owner "whole" or place him in

as good a pecuniary position as before the acquisition. Investigation has shown that juries favor this theory in making an award of damages and some courts sustain this doctrine.

Although reference has been made only to compulsory acquisitions for highway purposes, similar conditions obtain whenever court action is necessary in acquiring land. In order that the public may use its power of eminent domain without apprehension, a simple and economic method of condemnation should be used where court costs are at a minimum; where testimony is presented according to the regular rules of evidence; where the case is tried by a counsel who thoroughly understands valuation methods and who will so conduct it that relevant factual material will be presented rather than mere opinion testimony; and where the court is required to render a verdict in accordance with the evidence presented.

Compulsory acquisition has offered the greatest problem in public land acquisition and has received the most publicity in recent years. As a result, many states have attempted and have been successful in revising their eminent domain laws. Nevertheless, but a small portion of the properties acquired by the public are taken through compulsory action. The New York Grade Crossing Bureau has estimated that only $\frac{1}{2}$ of 1% of the total parcels acquired for highway-railroad grade elimination purposes have been appropriated, and of 2,072 parcels acquired between 1935 and 1940 for selected New York State highways only 70 tracts were acquired under condemnation, and for selected parkways only 14 of 253 parcels were taken through compulsory acquisition. In land acquisition for the Three-State Superhighway which extends south from the city of Milwaukee around Chicago, but 31 of

835 parcels were taken through condemnation.

Because the conditions which underlie public purchase theoretically result in the normal use of condemnation or the avoidance of it, greater emphasis should be given to the policies and procedures used by governmental agencies in acquiring land. Whether the state, county, city, or town is the acquiring agency, problems will arise which are intrinsically the same and which are attributable in many instances to practices followed in all public acquisition.

Although private property is taken for many public purposes, the most widespread and recurring acquisitions are for highway rights-of-way which traverse localities of varying population density and diverse land use. In both Wisconsin and New York, land for state highways is acquired by the counties. Investigation has shown many of the difficulties which arise when one agency designs and completes a development while the necessary land is provided by numerous other agencies using varying policies and procedures.

The county system of acquiring land was established before the initiation of state systems when local traffic needs were of primary importance. The development of state systems made use of existing local highways, so county acquisition was the most practical. As the demands of through traffic increased, the necessity of widening and improving these routes arose. Now state highway administration has become a major responsibility, but in spite of this fact the authority for the acquisition of the necessary rights-of-way in many states is still a county function.

When the state uses county acquisition, it is dependent upon county cooperation; efficiency of local procedure; and, where counties bear the burden of

the cost, the availability of county funds. Assuming that the county is willing to cooperate and that funds are available, the property is purchased under the established county policies and procedures. A common county procedure is to vest the authority for land acquisition in a committee consisting of members of the county board of supervisors.

Most counties allow the highway committee to make negotiations with property owners and to arrive at a price of settlement if possible, subject only to the approval of the county board of supervisors. Three outstanding criticisms of such practice are warranted.

First, the county places the responsibility of buying land in elective officials who may know little or nothing about land values at the outset. Then, after years of experience, men who can function efficiently may not be reelected or may be moved by the chairman of the county board to a different position.

Second, these men, because they are elected, usually are socially conscious individuals who, although not desiring to cause the county exorbitant expenditure, nevertheless feel a great responsibility toward the property owner, and purely objective evaluations are not obtained.

Third, counties in purchasing rights-of-way make little use of a systematic method of establishing equitable prices. Although a given county may base land, fence, and tree payments upon a unit price, investigation has shown that these prices vary considerably throughout a state, even among counties where the land quality, use, and general development are very much the same. This again is the result of the use of local practices. The system followed in arriving at a purchase price is that of starting at a very low figure and raising it as is necessary. This price may or may not be a fair value of the property purchased, and de-

depends upon the bargaining power of the property owner and the attitude of the county toward condemnation.

That payments made by highway committees exceed the market value is substantiated both by statements of highway officials and by comparison with statistics compiled by the United States Census and New York Tax Commission. A definite policy in at least two counties was to pay more than the market value; one stated that its procedure was to ascertain the market value of the property and then offer the owner double such amount, the other used this procedure for small tracts, but for properties worth \$500 or more offered an amount 25% above a fair market value. Yet these two counties which admittedly paid more than the market value were among the six counties incurring the lowest land cost; i.e., \$100 an acre or less.

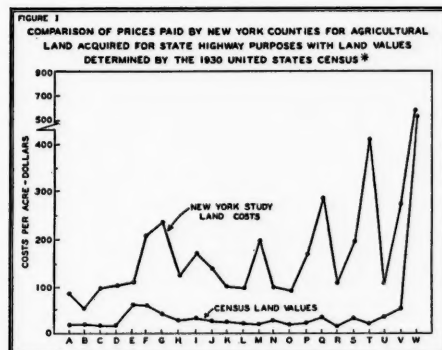
Figure I shows the relation between the average value per acre of agricultural land in New York counties as determined by the Census Department and prices paid for state highway rights-of-way within those same counties for land without improvements. The census values represent averages for the entire county, and although the assumption should not be made that average farm land taken for highways has a value per acre necessarily comparable to the average value of agricultural land for the entire county, the fact that prices paid by highway committees consistently exceeded such values is significant.

Peak highway values noted in Figure I reflect various other influences on cost. In counties indicated by V and T the purchase policies and tendency to avoid condemnation raised costs; in counties S, Q, and F the sample was drawn from highways located in highly developed agricultural areas; and in counties M and G the peaks are not significant because

the sample of acquisitions was very small.

A more thorough analysis of relative values was made of four counties through the medium of New York Tax Commission statistics. The true value of land and of land and improvements as fixed by the commission for properties outside of incorporated places was taken for each town in which a highway project studied was located. Although such figures are used for the purpose of equalizing taxes and may not reflect actual market prices, they are valuable for showing relative values because one agency applies the same standards and method of valuation to all political subdivisions as of the same date.

When prices paid per acre for highway acquisition were arrayed by towns with the tax commission true values, variations in cost were apparent. The relative



* Based on statistics in *Agricultural Statistics for New York State, 1932*, Bulletin No. 264, July, 1932, pp. 18-19.

land values shown by tax commission statistics were approximately the same in all four counties, whereas the relative values of highway acquisitions varied considerably. County T as compared with county S paid twice as much per acre for land and five times as much for

land and all damages. Again the price paid in county V for both land and damages was more than twice the price paid in county U. Since basic valuations in the immediate area, topography, land use, and nature of the highway development are comparable, and since a decided difference existed in the method used for acquiring the properties, it may be assumed that procedure had a definite influence upon cost.

Since public agencies are engaged in purchasing property, yet do not make a business of dealing in real estate, property owners often believe that they can obtain a good price when selling to the public. As this attitude is prevalent wherever private property must be acquired, sound procedure requires that a firm base be established upon which to deal. It is true that property owners often do not want to sell, and that their land and improvements have a utility value to them which often has no relation to the market value of the property but which has to be considered in an attempt at negotiation. Hence, the public interest is best served when qualified engineers or right-of-way agents are brought into public employ. These men should be required to have sound real estate training and a knowledge of values existing in the community in which they have to deal. They have no duty toward the property owner and feel no direct responsibility for him and are not subject to political caprice.

However, the use of trained personnel alone is no real assurance against the use of estimated values and the determination of prices according to existing values of the community concerned. Therefore, recognized methods of determining values should be made a part of the established procedure of the acquiring agency, and if the personnel of such agency is not qualified to make detailed objective

analyses of the properties involved and to show the various factors of value and the amount ascribed to each, competent appraisers should be employed. Some agencies object to the cost of appraisals, but unit-price estimates and mass valuations may be used without incurring heavy incidental expenses.

Unit-Price Method. The unit-price method is based upon land and improvement classifications. These values are based upon investigations made into prices paid by other agencies for similar items of damage and similar types of land. Appraisers are then employed to proceed along the location of the proposed route and obtain classifications of land and improvements which have to be acquired. Such a system was used by the Taconic State Park Commission in New York which paid \$10 a day plus expenses for such services.

Mass-Appraisal Method. The mass-appraisal method is used by some agencies that desire to obtain a rough estimate of right-of-way costs in determining whether or not a given expenditure is warranted or whether adequate funds are available. Under this system appraisers are employed to inspect each property to estimate the value of the land acquired and to bring in a list of the damages which will be incurred and their approximate value. This method was used in Westchester County, New York, in determining the right-of-way costs of a given route. Such services are paid at rates ranging from \$10 to \$25 a day plus expenses.

Detailed Appraisal Method. The detailed appraisal method is used most widely for properties which require court action. Under this system the appraisers make a thorough inspection of the land to be acquired and a complete analysis of the improvements according to size, quantity, and extent. These appraisals

are considerably more expensive than the two former methods and form the basis of testimony. Such services average about \$150 per parcel.

The unit-price or mass-appraisal methods should be given consideration by public agencies that propose to acquire private property. From these appraisals more detailed analyses may be made for those parcels necessitating court action.

Whatever agency is engaged in acquisition, the personnel employed in negotiating with property owners and the methods used in establishing prices should be given consideration. Although the use of a single agency may be desirable in public developments, land acquisition by minor governmental units can be economical if effective central control and supervision are exercised. To be effective, this control must be flexible enough to be adaptable to local requirements, but firm enough to eliminate local influencing factors. The arbitrary use of fixed prices by a central agency was found to result in excessive use of condemnation with its accompanying high costs.

In this article consideration has been given only to the outstanding problems of public land acquisition. For a sound pub-

lic land acquisition policy, laws should be changed to provide a simple and practical method of compulsory acquisition which would apply to all properties irrespective of the use for which they were acquired. In connection with such changes the elimination of the condemnation commission and informal hearings are believed desirable. Devices such as the award system or appropriation under the power of eminent domain should be incorporated to prevent unnecessary delays and to minimize costs. Such practices would tend to encourage the normal use of compulsory acquisition as the primary causes for apprehension in the use of condemnation would be eliminated.

Because most property is acquired through purchase, the public interests require that sound acquisition policies be substituted for the haphazard procedures in use at the present time. The delegation of complete authority in purchasing land to a committee of elective officials is basically unsound. The acquisition of property is a specialized business, and the public should be protected by requiring the use of trained personnel and a systematic and consistent method of evaluation.

Organization of Occupancy as an Approach to Real Estate Management*

By MARC J. FELDSTEIN† and LYLE C. BRYANT‡

I. The Broadening Conception of the Functions of Real Estate Management

RECENT years have witnessed a trend toward a broader conception of the functions of real estate managers. In practice, real estate management is still largely a matter of renting and rent collecting, together with some subsidiary activities such as maintenance and repair of physical structures—and in many cases it is still a mere sideline of brokerage or some other real estate activity.

Many real estate managers, however, are not satisfied with the present state and status of their occupation. They want it to be looked on as a profession. This drive for professional recognition is probably in many instances little more than an effort to glorify the old-fashioned humdrum activities of renting and rent collecting, repairing and maintaining structures, adjusting tenant complaints, and fighting the tax authorities, but recognition as a profession does not depend only on what a group desires or what it pretends. Such recognition calls for the possession of a body of systematized knowledge, together with willingness and ability to assume responsibilities of a sort larger than those ordinarily associated with rent collecting. In the field of real estate management this would presumably mean assuming responsibility for administering real properties so as to

maximize the income potentialities from investment in them—not for a year or term of years, but over the entire life of the investment.

Since the value or income potentiality of any real estate parcel depends to a large extent on its surroundings; since, in other words, parcels are integral parts of a larger whole comprised of neighborhoods and the general community, one of the major concerns of real estate management, properly conceived, is with conservation and regeneration of neighborhoods, with the prevention of abnormal degeneration.

Obviously, structures and neighborhoods cannot retain forever their pristine glory and attractiveness unless conscious and intelligent efforts are made from time to time for their rejuvenation. The most skillful management cannot prevent buildings from wearing out and becoming somewhat obsolete; but there are ways of putting the brakes on the forces that make for degeneration, not merely those that make for physical deterioration and obsolescence, but the even more potent ones that make for social deterioration and obsolescence; and there are ways of infusing new vitalizing elements in the older neighborhoods.

To put brakes on the degenerative forces, or to set in motion regenerative forces, however, calls for workers with an understanding of the nature of the operation of those forces, who are trained in techniques for harnessing them.

work in conserving and rehabilitating neighborhoods of Indianapolis have suggested many of the ideas incorporated in this paper.

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*II. The Nature of the Body of Knowledge
Required as a Foundation for Training
and Practice in Real Estate
Management*

Because real estate has such a conspicuous physical basis there is a strong tendency for those concerned with its administration to visualize their job rather crudely, primarily in physical terms.

This leads not only to a common failure to think and act in terms of neighborhood or community functioning, but, even where an effort is made at neighborhood conservation, the job tends to be thought of primarily in such terms as "paint up and clean up." There is an ever present tendency to overlook or give inadequate recognition to the fundamental facts that real estate is primarily an undertaking of people, by people, and for people; that what a family gets when it buys or rents a property is a *share in a community* and that a community is a *social phenomenon* rather than a mere aggregation of physical structures and facilities.

Adequate real estate administration, even from a strictly business point of view, involves thinking of real estate problems primarily¹ as a matter of *community organization*, with proper subordination of considerations relating to the tangible physical facilities. To be sure, the importance of the physical features is not to be depreciated, but physical structures and facilities acquire meaning only in terms of people and the interrelation of people. To think of real estate exclusively, or even primarily, in terms of physical structures and facilities makes it a meaningless abstraction, grossly de-

ficient in result-producing potentialities.

The narrow view, which comprehends mainly the physical aspect of the real estate problem is the source of all sorts of mistakes and misapplications of managerial effort. A restricted conception of the problem is, for example, largely responsible for the common tendency to interpret neighborhood degeneration primarily in terms of "adverse influences," whereas it is highly probable that careful scrutiny, which took into account the social as well as the physical aspects of the process, would reveal that *movement of population out of a given neighborhood is usually the precursor of the deterioration of that neighborhood, and not the reverse as is commonly assumed*. Careful investigation would probably reveal that the crucial factor in neighborhood degeneration (and incidentally the key factor in neighborhood regeneration) is the movement of the persons and families on whom the neighborhood depends to give it "tone," that is, those whose way of living the people of the neighborhood would like to emulate. There are, to be sure, plenty of instances where the introduction of "adverse influences" precedes the movement of such persons and families, but there is a strong probability that this is the exception rather than the rule.

From a practical standpoint misinterpretation of processes is regrettable because it leads to the misdirection of efforts in everyday management practice. Thus practicing real estate managers show a strong tendency to overlook or at least to relegate to a minor role what is really the crucial element in real estate management, namely, the organization of occupancy.

¹ This article is calculated to be suggestive rather than exhaustive. It will be noted that very little attention has been given to those aspects of the problem which pertain to the physical rehabilitation of residential structures and neighborhood accommodations, schools, recreation facilities, utilities, etc. This, of course, does

not mean that this latter aspect is not to be regarded as important. The thought is rather that the techniques there involved are already relatively well understood, so that the job of planning is now much easier than is the case with the community organization aspects.

It can be said with some confidence that, if occupancy is rightly organized, the income potentialities of properties will be realized and that, if it is not, they will not be. Yet this aspect is rarely made the object of deliberate planning and execution by competent technicians in a manner comparable to that with which the physical aspects of the job are now generally prosecuted.

Organization of occupancy is based on knowledge of those factors, whether physical or social, that give a neighborhood a good reputation in the eyes of people of the type desired as occupants; it involves, also, positive social planning and continued organizational efforts to provide the conditions that are essential for attracting and retaining as occupants families (or persons) of the kind desired.

The function of organizing occupancy with a view to maximizing the real income potentialities of properties has been neglected by public housing authorities as well as by private property managers. Public housing officials have been concerned with community organization, of a sort. But their approach, as a rule, is that typical of the social service worker. The public housing people have obviously set out to give the low income tenants some of the things these tenants "ought" to have, but which they cannot afford or will not provide for themselves—playgrounds, nurseries, community centers, etc. The motto has usually been "Do good and rely on the public subsidy to meet the bill." Generally speaking the program has not been planned in light of the broader considerations of social economy—with a view to utilizing basic sociological forces to the end of maximizing the real income potentialities of the properties.

Private property managers are moved more than are public housing officials by considerations of economy, though it

must be admitted that with them basic considerations of economy frequently do give way to efforts to maximize profits—often short run profits at that. But, of greater significance for our immediate purposes, private property managers, as a rule, have not thought of the possibilities of harnessing basic sociological forces as a way of stabilizing neighborhoods and maximizing the income potentialities of the properties committed to their care.

From what has been said it appears that at the foundation of both public and private property management there is the same body of knowledge. The policies of the two groups are very different, but the basic functions and the basic techniques are the same. The key element in that group of functions, the central feature in the body of knowledge on which sound property management, public as well as private, is built, is the organization of occupancy.

III. Suggestions for Research Pertaining to the Neglected Function of the Organization of Occupancy

In order to know how to organize occupancy it is necessary to understand the underlying processes. Very little is known about them; hence, the need for research.

In the following paragraphs we undertake to offer a few brief suggestions to guide research efforts in this field. This we do to insure the asking of pertinent questions, in the hope of obtaining answers that will be applicable for the improvement of practice in the field of real estate management.

(1) The regeneration of a neighborhood is not to be thought of as a mere reversal of the process of degeneration. The natural processes of degeneration, of course, have to be studied in order to see what forces are operating. However,

when it comes to regenerating a neighborhood, a new set of forces has to be introduced into the situation in order to create a dynamic system able to carry through the regenerative process.

(2) A given neighborhood must be thought of as a part of a more comprehensive whole, the larger community. Therefore, a given neighborhood cannot be studied in isolation. It must be viewed in its relation to other neighborhoods, particularly as to their comparative desirability.

(3) In analyzing the process of neighborhood degeneration as a basis for planned regeneration, the most fruitful field of investigation is probably to be found in the *study of the character of movements into and out of the neighborhood over a period of time*, with particular attention to the movements of (good) "tone-giving" families. It is felt that this approach is more likely to be productive of practical results than the usual type of thinking in terms of "adverse influences."

(4) In studying the movement of population into and out of the neighborhood, as a basis for understanding the causes of neighborhood degeneration and for purposes of work in regeneration, it appears more advantageous to consider the reactions of each person to a neighborhood in terms of his total *response* to that neighborhood rather than in terms of the specific *reasons* he may give for his liking or disliking it. The explanation for this is that the reasons given are usually mere rationalizations and are likely, therefore, to be misleading.

(5) It is important in analyzing the causes of movement into and out of a neighborhood to look at the points at

which *decisions* to move or not move are made, especially in connection with the "tone-giving" residents. It is well known that this point tends to be different at different stages in the life cycle of a family, the relative importance of children tending to increase as they mature, acquire independent incomes, and establish new families. It is quite possible that this increasing *influence of children* represents an important factor in the trend in mobility of "tone-giving" families. If this hypothesis holds, it will be productive of a vast number of valuable suggestions for stabilizing and regenerating neighborhoods.²

(6) The observations of the preceding paragraphs make it obvious that quantitative statistical techniques have only limited application in the research most needed for the guidance of real estate management. It has been emphasized that the neighborhood should be regarded as an "organism" rather than as a mere set of additive forces. Hence any attempt at reconstruction of the picture by mere listing, counting, and measuring of well defined factors (or points) will produce a mere abstraction, not a meaningful dynamic conception useful for working purposes in neighborhood conservation and regeneration. Case studies are undoubtedly more useful, and certainly extensive case studies are necessary if the essentials of the problem are to be understood.

(7) Since a neighborhood is a dynamic thing, it has a history, so an *historical approach* as well as a cross-sectional approach is necessary for an adequate understanding of it.

(8) Each neighborhood has a reputation, which is nothing more than an eval-

² For instance, it may be found that one of the reasons for the degeneration of neighborhoods is that in time they tend to become "sedate" and thereby cease to be livable to younger, more active, and ambitious

people. If this is the case, one of the tasks of neighborhood rejuvenation will consist in the introduction of modern social stimuli.

uation of the locality by the residents themselves and by other groups and individuals. Hence the formulation of a *favorable public opinion* concerning a neighborhood among desirable present or prospective residents is an essential part of the planned conservation or regeneration of a neighborhood. Intensive community organization work is the *sine qua non* of success in neighborhood conservation or regeneration.

(9) Applied real estate management research such as is here contemplated needs to be planned and carried on so that the two main phases of it, the data gathering phase and the community organization phase, will not be independent but will be integrally related. Thus the community organizer needs to be trained as a *participant observer* capable of observing and recording in meaningful terms the results of his activities. In this way practical community organization work can supply many significant data, which together with data gathered from other sources should guide further work in the organization of occupancy.

(10) It is implicit in the preceding paragraph that research relating to the organization of occupancy should not be purely theoretical. That is, the research, instead of consisting in a mere discussion of ways and means for doing it, should be carried on as one phase of an active program for organizing occupancy.

(11) Publicity has a role of some importance in research of the applied variety such as is contemplated here.

However, it is necessary to distinguish two different types of publicity—namely, service publicity or that calculated to aid in the work of organizing occupancy and self-glorification publicity or that calculated to serve the ends of self-glorification of the persons conducting the work. It is important that the publicity be exclusively of the former type at least until the job, or major sectors of it, are completed. Any publicity of the latter sort should be of things done, not of things in process. Publicity of the self-glorification variety relating to work in process will tend to wreck the constructive community organization features. The point has more special reference to private real estate than to public housing projects.

IV. Conclusion

The above discussion suggests that real estate management is on the brink of significant development. This is predicated on the assumption that the ideas of the more progressive practitioners will gradually penetrate the rank and file of real estate managers. Much responsibility, of course, rests with the real estate trade associations.

At the same time universities, governmental departments, and other agencies having responsibilities for carrying on research will need to do their part toward developing a sound basis for training and practice in real estate management. This paper has undertaken to point the way to certain areas and types of research that promise to be particularly fruitful.

New Settlement in the Delta of the Lower Mississippi Valley

By PHILIP E. JONES,* JOHN E. MASON,† and JOSEPH T. ELVOVE‡

AMONG the most pressing problems in American agriculture today are those associated with the current settlement of land for farming purposes in various parts of the United States. Throughout the delta of the lower Mississippi alluvial valley, in the regions surrounding Lake Okeechobee in Florida, in the basin of the Columbia River, and to a limited extent in the Cumberland plateau are to be found thousands of families seeking to establish permanent farm homes. Although their efforts are in a sense "pioneering," actually they are beset with economic and social maladjustments far more difficult of solution than are the relatively simple physical problems and hazards ordinarily associated with a pioneer agriculture.

The desirability of this new settlement and the causes for such a movement are highly debatable topics. Some may view the opening of new agricultural lands as a factor further complicating the "farm problem," particularly when the farm problem is translated into one of overproduction of basic agricultural commodities, and for this reason they would not encourage such settlement. Others see in the development a very desirable shift of production from poor to good agricultural areas.

As to the cause of the settlement, some consider it a natural result of production and price controls, whereas others consider it the manifestation of the pressure of "surplus" farm people on the land re-

sources of the Nation. Regardless of the differences of opinion arising as to these questions, there can be little doubt about the need for action programs in areas of new settlement; programs which will insure that, so long as such movements of people occur, settlers can be protected against dubious land-selling schemes, usury, high land prices, and unreasonable purchase terms. Nor is there doubt that existing action programs should be adjusted to prevent undue hardship and suffering among families attempting to establish homes on better land than that on which they had been farming.

In order to explore and analyze some of the significant problems associated with new settlement and to assist county and state land-use planning committees in developing recommendations for a desirable program of action, the Louisiana Agricultural Experiment Station and the Bureau of Agricultural Economics undertook a study of representative parishes in the northeastern Louisiana delta.¹ From this investigation have come indications of the principal difficulties facing the "new-ground" farmer, the causes of maladjustment, and the possible alternative means of seeking solutions to the major problem associated with new settlement.

Although the intensive investigation upon which this paper is based has been limited to the northeastern Louisiana delta, the conclusions reached are in general applicable to the entire alluvial area extending along the Mississippi River southward from Cairo, Illinois, to

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¹ Phillip E. Jones, John E. Mason, and Joseph T. Elvove, "New Settlement Problems in the Northeastern Delta," *La. Agr. Exp. Sta. Bul.* to be issued shortly.

Baton Rouge, Louisiana. The principal adjustments needed to adapt the program developed for Louisiana to the delta regions in adjoining states arise primarily from dissimilar constitutional and statutory provisions, minor physical differences, and slightly varying institutional patterns.

Historical and Physical Setting

The first permanent settlement in the Louisiana delta began around 1820 with an influx of farm families coming largely from Kentucky, Tennessee, and the states farther east. About 1840, families were arriving in great numbers, and for a period of 20 years until the outbreak of the Civil War agriculture apparently prospered.²

However, this early settlement was limited almost entirely to "front lands"³ on the Mississippi River and on the major bayous of the region, such as the Tensas River, Bayou Macon, and Joe's Bayou. The front lands were considered most desirable not only because of their lighter-textured soils and high elevation⁴ but also because the adjoining streams served as the only transportation routes for the marketing of farm products. Local legends have it that some of the areas now being cleared for farming were in agricultural use before the Civil War, and evidence such as old graveyards, brick cisterns, ruins of antebellum plantation houses, and slave levees⁵ support the contention. The apparent explanation for this early settlement and aban-

donment is found in the fact that the hazardous use of the low-lying lands was possible only so long as slave labor was available to build and keep in repair the local levees and drainage canals and to cultivate the lands under extremely poor living conditions. But parish courthouse records indicate that the extent of this "back land"⁶ settlement was not very great and that most of the lands now being opened have never been under the plow.

In the delta of the lower Mississippi alluvial valley one of the largest influxes of new settlers has already taken place, and it is conservatively estimated that at least 5 million acres remain subject to development and settlement.⁷

Shortly after 1900 large tracts of both abandoned lands and virgin timber passed into the hands of lumber companies, which for a period of 30 years continued to exploit the resources, until by 1930 most of the merchantable timber had been removed. Having completed their lumbering operations, the companies at once began to dispose of the lands. The beginning of this procedure coincided with a movement of farm people forced by drought and the depression of the early 1930's to leave their homes in the hill-land areas of Louisiana, Mississippi, and Arkansas. Both as a result of this voluntary movement and as a result of promotional sales schemes instituted by the lumber companies, large numbers of settlers have moved and are continuing to move onto cut-over lands.

² E. L. Worthen and H. L. Belden, *Soil Survey of East Carroll and West Carroll Parishes, Louisiana*, Bureau of Soils, U. S. Dept. of Agriculture, 1909, p. 9.

³ "Front land" is that which is adjacent to rivers and bayous.

⁴ In alluvial areas the lands immediately adjoining streams are generally of higher elevation than those farther removed, because periodic overflow, resulting in the continual deposit of alluvium, builds the banks and forms natural levees.

⁵ "Slave levees" are dirt embankments about 3 feet

in height constructed by negroes prior to the Civil War.

⁶ "Back land" is the opposite of front land, that is, away from water frontage.

⁷ This estimate is based on census data which indicate that, in the area known as the delta, roughly 13,000,000 acres exist that are undeveloped. Allowing for unsuitability for agriculture and occupancy arising from poor soils, uneconomic drainage, or frequent flood, the Department of Agriculture has estimated that at least 5 million acres remain subject to settlement for farm home purposes.

In three Louisiana delta parishes, between 1935 and 1940 inclusive, nearly 1,500 new families, usually with not even sufficient money to make a down payment on the land or to build a house, have come to establish permanent homes.⁸ These families, $\frac{3}{4}$ of whom are white, have contracted to buy nearly 68,000 acres of land, of which they have already cleared approximately 37,500 acres, almost wholly for crop purposes. In the three parishes into which these 1,500 families have moved, the 1935 census reports 243,000 acres of cropland.⁹ Thus, the acreage brought into cultivable state during the last five years as the result of new settlement represents an almost 16% increase over that in existence in 1934. Consequently, both in terms of the number of families affected and in terms of additional land being brought under the plow, the new settlement in the delta of the Mississippi River is of far-reaching significance.

Physically the lands being settled by disadvantaged rural families are typical of the delta "back country."¹⁰ Although generally fertile, the predominant soil types are heavy-textured and difficult to work without special equipment. Like most of the Lower Mississippi Valley, weather conditions are usually favorable for cotton production, providing crops can be protected against two major hazards—floods and poor drainage. Although much of the low-lying delta lands was poorly protected or completely unprotected until the beginning of the comprehensive federal flood control programs in 1928, today a system of levees and cut-offs exists which can be expected to protect most of the area against any but the most severe floods. In fact, probably one of the principal reasons for

current widespread settlement in the delta is the flood protection which has been afforded in recent years through efforts and moneys expended by the Federal Government.

Unfortunately, the second physical hazard, that of drainage, has not been so completely removed as has that of floods. The Louisiana delta experiences short, mild, rainy winters; warm, rainy springs; and long, hot, humid summers, which, though generally sufficiently dry to be conducive to cotton culture, are characterized by heavy rainstorms. Therefore, on low-lying delta lands, the prompt removal of excessive surface water is extremely important during the late winter and spring when plowing and planting are in order, and during the summer and fall when cultivation and harvesting must be done. Because few satisfactory drainage projects have been instituted, most of the lands being settled are poorly drained, hence are unsuited to continued occupancy for farm home purposes until such drainage has been provided.

Types of Land Development and Settlement

Land is being brought into cultivation in the delta in three principal ways. One type of development is the expansion of existing plantations by clearing the land with the use of wage hands or heavy machinery; this type of land clearing has resulted in the development of extensive acreages of cut-over lands. A few single plantations have put as much land into cultivation in one year as have 20 or 30 individuals engaged in clearing and developing family-sized units by hand methods.

A second type of land settlement is the creation of entirely new plantations by

⁸ Data for East Carroll, Madison, and Tensas Parishes, Louisiana, based on AAA records.

⁹ Including cropland harvested, crop failure, idle or

fallow cropland, and plowable pasture.

¹⁰ That part of the delta which is quite removed from the river.

paying cash to have the land cleared, by giving all the crops for two or three years as compensation for clearing, or by some other rental arrangement. Settlers who clear and develop land under these conditions are simply wage hands, croppers, or tenants on cut-over property instead of on an old established plantation; the problems confronting such settlers are essentially the same as those facing the plantation cropper and tenant. Again, the significance of this type of settlement is that large acreages of land can be brought into cultivation in a very short period of time.

The third and most important method of land development, both from the standpoint of the extent of settlement as well as from the point of view of the development of agricultural policy for directing such settlement, is one whereby owners of large cut-over tracts are disposing of lands to settlers in family-sized units. Although vendors vary slightly in their sales policies, the usual arrangement is to give the settler a time-purchase or an option-lease contract. Under the former arrangement the farmer makes a down payment at the time he enters into the contract and agrees to pay the balance in 10 equal annual installments, whereas settlers with option-lease contracts make no down payment and are given until the end of the third crop year to decide whether or not they wish to attempt to buy the land. Although the settler is not obliged to make any payment on the land or to pay a cash or share rent of any kind during the first three years, he must clear a specified acreage each year, build a house, and establish other improvements.

According to legal opinion¹¹ these contracts are so worded that they operate to the detriment of the vendee. Specifically,

¹¹ The Solicitor of the U. S. Dept. of Agriculture reviewed these contracts, prepared a detailed analysis of

in the event the settler cannot continue to operate under the terms of the contract, no provision exists to compensate him for the unexhausted improvements he has made or for any land clearing he may have done. Also, the contracts do not ordinarily permit a portion of the receipts from the cash crop, cotton, to constitute the total payment due that particular year, but instead specify definite cash amounts which must be paid each year. If payments are not made in full in any one year, the balance as well as another full payment will be due the following year. Finally, the contracts are usually vague as to final transfer of title to the buyer at the expiration of the contractual period.

Costs of Settlement to the Farmer

Settlers usually contract to buy 40 or 80 acres of the uncleared cut-over land at \$25 to \$40 per acre. Those who attempt to buy 40-acre tracts agree to clear five acres each year for the first three years, the costs for such clearing being approximately \$15 per acre at the prevailing labor rates. In addition to buying and clearing the land itself, settlers must also bear the costs of erecting houses, barns, and other improvements, as well as the necessary charges involved in drainage. Collectively, these charges become an extremely heavy burden upon the farmer whose cash resources are very limited or non-existent. Since the total costs for improving the cut-over lands are rather high, the prices which are charged for undeveloped lands are much higher than the settlers can afford to pay with the proceeds received from products raised on the farm. Also, the short period of time which is given a settler to pay for his land makes the annual payments excessively burdensome. In

their provisions, and suggested new forms eliminating the undesirable features of the contracts now in use.

fact, very few of the people attempting to carve out farms in the delta have been able to meet the payments in full when due. Many settlers consider themselves fortunate if they are able to pay only the current interest charges; others manage to pay the interest and part of the principal currently due; but very few find it possible to pay the total amount of principal and interest due.

According to the terms of their contracts, the settlers can be dispossessed if they do not make full and prompt payments of interest and principal; however, this legal procedure is rarely followed. Instead, the farmers who are unable to meet their payments are usually either disheartened and move voluntarily, or remain on the land with the oral permission and sufferance of the vendors. If the settler moves voluntarily, he is not compensated for any unexhausted improvements he has made but simply has the privilege of selling his equity, if he can, to another settler who takes up a new contract. In the latter case the amount which the first settler may receive is small indeed, yet the vendor charges the second settler a higher price per acre than the original purchaser because of the improvements and clearing made by the latter. Should the settler remain on the land, even though he is unable to meet his obligations, the amount currently due soon reaches major proportions. It is not unusual to find farmers who have as much as \$1,000 interest and principal overdue, and it is apparent that such amounts could not be paid were the vendor to demand immediate settlement. Therefore, a large majority of settlers are subject to dispossession at the pleasure of the land seller; and it is entirely possible that many settlers may be allowed to remain on the land for several years, clear considerable acreage, establish improve-

ments, and pay whatever they can toward interest and principal charges only to be dispossessed finally because of inability to make the entire payments agreed upon.

In seeking ownership and security the settlers naturally want good land and a profitable farm organization, and in moving into the delta these people are led by land sellers to believe that they will be prosperous and secure in a short time. In a study made in Tensas Parish, Louisiana,¹² of 135 individual farm operators who gave reasons for moving, slightly more than $\frac{1}{2}$ moved for better land, better living quarters, a more profitable set-up, or ownership and security. Other reasons given included institutional advantages, real or imagined injustices, escape from personal associations, unemployment, and psychological unrest. The same study revealed that $\frac{2}{3}$ of the individual farm families moving into the delta since 1930 had relatives already in the area; therefore, when the cut-over lands were put on the market in small units for farming purposes, the land selling agencies had little difficulty in reaching prospective purchasers.

Costs to Vendors

It may be argued that vendors incur costs in connection with the disposal of lands which justify the high prices charged in the contracts. However, available information indicates that no such unduly excessive costs are incurred. Characteristic cash costs which the land sellers must meet include surveying, advertising, administrative, and supervisory salaries, and, in some few instances, the cost of road construction. It is estimated that the combined amount

¹² Homer L. Hitt, "Recent Migration into and within the Mississippi Delta of Louisiana"; a study to be presented as a doctoral dissertation at Harvard University.

of these costs would equal about 5% of the total selling price. In addition to these direct costs, the vendors often give the land rent-free for the first two or three years and up to the present time have frequently permitted farmers to remain on the land even though they do not make the agreed payments. On the other hand, any such gratuities are usually more than offset by the increase in value of the vendor's property resulting from the clearing and other improvements made by settlers.

It is rather difficult to ascertain the basis upon which vendors establish prices, but evidence tends to indicate that neither the original cost to the owners nor the settlers' real ability to pay is a very important consideration. Inequality of bargaining power results in destitute farm families agreeing to almost any price and any terms in order to get a refuge even though it lasts only three years. Because the settlers have been unable to meet their payments, the prices charged them are obviously in excess of what the economic returns from the land will justify. Since approximately 75% of the new-ground farmers have not fulfilled the cash terms of their contracts and are not likely to be able to do so, the vendors have the legal right to dispossess them and resell the tracts separately, in plantation units, or to operate such areas themselves as plantations.

Costs to Public

No serious problems of public finance which currently affect local government exist in new settlement areas although the roots of such problems for the future are clearly discernible. Unless settlement in the delta is properly directed and planned in a way that will insure new-ground farmers a reasonable degree of success and tax-paying ability, the par-

ish may find it difficult to satisfy increasing demands for roads and schools out of local revenue resources. Drainage districts, too, unless properly planned and administered, may very quickly find their obligations to bondholders difficult or impossible to meet.

The effects of new settlement on public finance are more apparent at the state level than on the local government plane. Increasing payments out of the state treasury for schools and property tax relief are indications of potential problems in state budget balancing. Although the slow shift in tax burdens from local units of government to the state is not confined to areas of new settlement, obviously where aids are provided largely in response to need, as in the case of schools, the burden on the state can be expected to increase in regions of new settlement more rapidly than in older sections of the state.

Since gravel road construction has not kept pace with settlement, most settlers must travel considerable distances on dirt roads in order to get to market. In wet weather these buckshot-clay roads are an impassable mire for motor vehicles and are difficult of passage even by wagon and team. Although police juries (county boards) apparently are making rapid progress in meeting local road needs, it does not appear that any comprehensive road system for newly developed areas has been planned, but rather that demands for extension and improvement are met as they arise or as they seem politically expedient to meet.

The schools for white children, in general, are adequate, although a few families live two to five miles from a bus route, indicating the need for a few additional routes or for new schools. School needs are greater among negro than among white settlers, particularly since it is not the established policy to provide

school bus service for negroes. Consequently, as the number of negro settlers increases, some planning is imperative with regard to the location of new schools.

*Farm Organization, AAA, and
Credit Problems of the Settler*

The only type of farming found in the delta is one with cotton as the primary cash crop; and, in fact, a large majority of the farmers, both old and new, rely upon cotton receipts and AAA payments based on cotton as their only sources of cash income. Thus, a bad cotton year means many hardships for the new settler, who, unlike the established farmer or planter, has no financial reserve. Not only is he unable to make the payments currently due on his land, but he may also experience considerable difficulty in providing the necessary food and clothing for his family. Many of the settlers who come from the hill areas are unable to adjust themselves to delta conditions, and many former croppers suffer seriously from lack of the supervision to which they have grown accustomed.

Food and feed crop production could be greatly stimulated, yields could be materially increased, and drainage conditions might be improved by better farm planning.

The rapid settlement on the cut-over delta lands has produced a series of increasing difficulties affecting both the individual settler and the AAA cotton-adjustment program. Aside from the usual physical problems confronting the establishment of a permanent agriculture on cut-over alluvial lands, the new settlers encounter serious difficulties in obtaining a cotton allotment which is adequate to provide income for minimum living expenses, for payments on

land, and for other farm expenses. As parish allotments remain rather constant from year to year, any increase in acreage allotted to new farms must ultimately result in a corresponding decrease on old farms, thereby producing friction between the new settlers and established farmers.

Because of the great amount of time required to clear land and establish essential improvements during the first year or two, new farmers plant extremely small acreages. As a result, many settlers find themselves permanently limited to four or five acres of cotton, regardless of the additional cropland brought into the farm by clearing operations, because the Agricultural Adjustment Act of 1938 limits the cotton acreage on any farm to the highest cotton acreage planted plus that diverted in any of the past three years. Since many settlers are not aware of this statutory limitation when they plant their first cotton crop on new land, they make no effort to plant fully up to the parish percentage of cropland.¹³ Consequently, in order to obtain allotments in proportion to those of old farms, new settlers who find themselves with a low cotton acreage allotment must remain out of the program a year; that is, they must overplant intentionally for one year to establish a planted history of sufficient acreage to allow them thereafter to produce up to the parish percentage of cropland. Very few farmers do this simply because they feel, or are advised, that they cannot afford to pay the penalties which would be involved. Anyone who intentionally overplants cotton or who plants an acreage larger than the cotton allotment for the farm automatically loses all claim to AAA payments that year, and is subject to a penalty tax

¹³ The administrative regulations for 1941 provide that allotments to new farms shall not exceed 50% of the parish percentage of cropland and that no benefit pay-

ments will be allowed with respect to cotton on farms on which cotton was not planted in 1938, 1939, or 1940.

of three cents per pound of the normal yield on the excess acres.

Settlers rely heavily upon seasonal credit, locally termed "furnish," with which to produce a crop. Although some of the new farmers use local banks and individuals as sources of short-term credit, a majority of them borrow through the Farm Security Administration either because they cannot obtain the money elsewhere or because they are able to get a much lower interest rate and better terms through this agency. Since the FSA finances a majority of the new-ground farmers, it is obvious that the Federal Government is doing much to further settlement, particularly with respect to making possible the clearing of land and the institution of capital improvements. Because the FSA is committed to the policy of alleviating suffering among farm families regardless of cause, its lending policy has inadvertently, in some cases, aided speculative landowners by making it possible for settlers to remain on the land during the first three rent-free years and thereby clear the land to the advantage of the owner.

Suggested Programs and Policies

The problems arising from the new settlement now taking place in the Louisiana delta demand a carefully planned and administered program of action, a program attacking all of the problems simultaneously. The details of such a program and the adjustment of plans to fit local needs and attitudes are functions which are properly part of the county planning process. Study of representative parishes shows that certain general policies and programs of action would do much to insure the develop-

ment of an economic and socially desirable pattern of settlement. Whether or not these policies and programs are adopted depends largely on existing statutory and administrative restrictions as well as on the willingness of legislative groups and responsible officials to make needed changes.

The social interest in a desirable action program is rooted first of all in the welfare of the farm families concerned. Obviously, these people are unable without the assistance of government to protect themselves against speculative land deals and usurious practices, or to educate themselves with regard to desirable types and techniques of farming. Additional justification for carefully formulated policies is found in the interest of local and state governments in preventing the development of public finance difficulties and in the interest of the Federal Government in preventing a few individuals or large corporations from reaping the unearned increments of a federal flood control program, in making the Agricultural Adjustment program operate efficiently and without friction in the delta, and in assuring that its farm security program functions for the benefit of disadvantaged rural classes living on the land and not to the principal advantage of non-resident land owners. Further coordination of already existing programs would be beneficial to the settler as it would give him a more stable basis for planning his farming operations.

*Unified Drainage System.*¹⁴ Since the most pressing physical problem facing new settlers is that of drainage, planned drainage projects which appear economical should be effected at once. Particularly is it important that future efforts

¹⁴ A drainage survey was conducted as part of the intensive study of representative Louisiana delta parishes. From the report of the engineer who made this

survey have come recommendations dealing specifically with the drainage needs of the parishes involved and presenting the outline for a unified drainage district.

toward obtaining better draining take cognizance of the need for a unified system incorporating all parishes within a natural drainage area. The plan for a unified system would require the setting up of one large district and would provide for a reorganization of existing districts into the new unified system. Existing authority permits the police juries of two or more parishes by joint action to create districts out of adjacent parts of parishes.¹⁵ On the other hand, the courts have held that no district may incorporate all of one parish.¹⁶ Consequently, if it should be necessary to include an entire parish in the system, legislative action would be necessary. However, since in general the front lands along the Mississippi River are adequately drained, it seems unlikely that the legal prohibition accompanying the incorporation of an entire parish would loom as a serious problem. The most difficult procedure in setting up a unified drainage system is the reorganization of existing districts into the single enlarged unit. Although adequate authority exists¹⁷ for the type of reorganization proposed, the difficulty of obtaining a majority vote of landowners in each of the seven existing districts is apparent. Consequently, if any district is so organized that it will not seriously impede the development of the unified plan and at the same time will not benefit greatly from the institution of improved drainage, it might be permitted to remain independent. However, present information indicates that proposed unified districts are so far-reaching in their effects throughout the natural basin that all land except that along the river is likely to benefit.

Planned Road and School System. Corollary to the need for well organized

drainage is the necessity for planning a local road and school system which will serve adequately the demands of new settlers without incurring any of the costs attendant upon a haphazard growth of these facilities. Since roads must be constructed in the delta with wide, deep ditches, they naturally serve as lateral drainage channels for adjoining lands; and, consequently, the road pattern needs to be integrated with the drainage system if the greatest economies are to be realized. Important, too, is the fact that the planned location of roads and schools can influence the settlement pattern even though obviously such an influence will not wholly prevent the occupation of inaccessible or isolated tracts. Because the parish police jury and the parish school board have adequate existing authority¹⁸ to plan the location of roads and schools, the preparation of such a plan can proceed at once even though other restrictive devices may have to await legislative action.

Improved Purchase Contracts. In order to protect both the individual settler and the public interest in developing a reasonable degree of security for the farm family, the contracts being issued to settlers must be improved. A proposed contract has been developed by the Solicitor of the United States Department of Agriculture. Compared with the contracts now in use, the proposed agreement affords the following improvements:

1. It gives the settler a warranty of title which will eliminate sales wherein the vendor has reason to suspect that his title is not good.
2. It protects whatever equity the settler may have in the land by virtue of principal payments, land clearing, buildings, and other improvements.

¹⁵ Cf. R. L. Carleton, *Local Government and Administration in Louisiana* (Baton Rouge: Louisiana State University Press, 1935), p. 230.

¹⁶ *Lacy v. Ottawa Banking Co.*, 272 F. 448 (1920).

¹⁷ Carleton, *op. cit.*, p. 234.

¹⁸ *Ibid.*, pp. 206-7.

3. It provides for more reasonable terms in the period of payment, in the rate of interest, and in permitting the amount of payment to vary with crop success or failure.

Obviously the development of a desirable form of contract does not at all insure its use. Although an educational program in the area, particularly through the Extension Service, might impress upon local people the advantage of using an improved contract, unfortunately such a campaign would necessarily fail to reach the bulk of the settlers coming into the area from other regions. Hence, negotiations directly with the vendors would seem to be the most satisfactory procedure for securing general adoption of a desirable contract form.

Reduced Land Prices and Liberalized Credit. Although improved contracts can do much to protect settlers, they can in no way reduce the present high prices charged for cut-over lands. Fundamentally, the exceptionally high price charged by vendors in selling lands to poor-risk settlers is what makes eventual purchase seem impossible. Two courses of action appear desirable for reducing the price of land to new settlers. One is the setting up of a revolving fund for the purchase and resale of cut-over lands by some federal agency, such as the FSA; the other is the establishment of a policy by the FSA for giving preferential treatment in its rehabilitation-loan program to clients with good contracts which stipulate a reasonable price for land.

The revolving fund for the purchase and resale of land could either be set up directly as an administrative function of the FSA or be established as a cooperative undertaking allowing settlers to become members of the organization as they sought to buy land.

From previous experience of the Federal Government in buying or optioning

cut-over lands and from indications received from present owners, it appears very likely that most of the land being settled could be bought in large blocks for from \$5 to \$15 an acre as compared with the \$25 to \$40 being charged the individual settler. This disparity in price charged the individual settler as compared with that which would be charged the Federal Government is attributable in part to the fact that the latter would purchase large contiguous areas for cash, thereby dispensing with much of the usual sales overhead. However, all of the difference cannot be so accounted for, as the costs borne by the vendors are not so great as the price charged would seem to indicate.

Although the government would have to add costs of handling and supervision to the price it paid for land, the net price to settlers would obviously still be considerably less than that now being charged. Included in the revolving fund procedure would be none of the traditional features of resettlement projects, such as model buildings, electrification, or power equipment. Instead, settlers would be left free to make individual decisions as to the extent to which they wished assistance beyond that given for buying land. If a settler felt that he could carry the additional burden imposed by model housing, separate loans through current FSA financing programs could be made. On the other hand, new farmers desiring to keep their annual cash obligations to a minimum could do so by restricting their overhead costs.

The second method suggested for reducing the price of land and for inducing the adoption of better contracts (that of preferential treatment by FSA) offers the best opportunity for getting immediate action on a rapidly growing problem. Since it is apparent that few settlers could manage to exist on cut-over land

during the first few crucial years without FSA assistance, the government should insist that these expenditures be safeguarded and not used to finance the clearing of lumber company land by destitute rural families. Consequently, by indicating to vendors of land that liberal assistance will be forthcoming only to settlers with proper contracts and reasonable land prices, the FSA can do much to eliminate the current subsidy to speculative landowners and to protect the individual new-ground farmer's equity in the land.

Although the programs and policies so far suggested may assist settlers who come into the delta in the future to obtain fair land prices and reasonable terms, they can do little to aid farmers already heavily burdened with dubious purchase arrangements. This latter group will require a refinancing program either under FSA leadership or through liberalized Federal Land Bank policies. Although some settlers already in the delta might be included in purchase areas and thus be aided under the revolving fund by the government's taking over and refinancing their contracts, others would have to be handled as individual cases dealing directly with vendor and vendee under land bank refinancing or farm debt adjustment procedures.

Not only should the FSA protect the new farmer against bad land-purchase schemes, but it should seek to ease his credit burden during the early years of settlement. A system which would make available liberal amounts of intermediate credit is badly needed. Such a program would permit the settler to devote more of his time during the beginning of operations to the clearing of land and the institution of essential improvements rather than to the hasty planting of small cotton acreages. Of course, as soon

as the farmer has cleared sufficient acreage, made needed improvements, and demonstrated his capacity for successful farming, he should have the facilities of long-term credit made available to him through the Federal Land Bank system. The need for liberalizing land bank loans is particularly important for those settlers who are already in the delta and who would not obtain the advantages of the long-term purchase arrangements suggested above under FSA purchase and resale or through the development of land-buying and -selling cooperatives.

Technical Assistance for New Farmers.

All settlers to some degree are faced with the problem of making adjustments to new farming conditions and to a relatively new way of life. When families move to the delta from the hills, they find physical conditions in the land quite different, requiring different farm equipment and needing methods of husbandry largely unknown to them. In making the shift from a tenant or a cropper to a land-clearing settler, the new-ground farmer finds that he must produce more than a few acres of cotton and corn if he is to survive, that his FSA financial assistance is predicated on a "live-at-home" program, and that the problem of farm planning falls directly upon him as an individual responsibility.

Most settlers are eager for information and advice on the new problems with which they must cope but, unfortunately except for small amounts of time which the county agricultural agents and the rural rehabilitation supervisors can divert from their office duties, most settlers must do without more than nominal counsel and supervision. Theoretically, the rural rehabilitation supervisors are supposed to provide individual counseling, but in practice they are so burdened with office routine and heavy case loads that such assistance is small. Similarly

the county agents are supposedly available for the work indicated, but usually the problems of the established farmers and the greatly expanded farm programs of recent years consume most of the time available to extension agents. Therefore, in order to make possible the individual assistance needed, a coordinated effort should be made by the Extension Service and the FSA to find and employ personnel technically competent and capable of understanding new-ground-farmer psychology and of sympathetically advising these people with reference to their numerous farm problems. Such personnel would in effect be either assistant county agents or assistant rural rehabilitation supervisors, "specializing" in and devoting their entire time to new-ground farming. Expenditures for such service might appear large in relation to the number of farm families it would actually reach, but in terms of safeguarding the government's financial and social investments in people, they will seem reasonable indeed.

Revisions in AAA Cotton Program. In dealing with the problems of new settlement and in seeking means of survival for new-ground farmers, it has been assumed that the only major source of cash income for farmers in the delta is cotton. From our studies based on that assumption, then, we make the following suggestions for steps that might be taken, either by statutory amendment or by changes in administrative orders:¹⁹

1. One such step might be provision for shifting allotments between parishes and states in the Cotton Belt as may be administratively determined to be necessary because

¹⁹ The AAA is not in position to approve these suggestions for changes in the cotton program, and the suggested changes are not entirely in line with recommendations for establishment of cotton-acreage allotments for new farms made at the recent national conference of

of the development of new lands. It is recognized that the effect such shifts may have on allotments of farmers in older areas needs careful consideration.

2. A second possibility would be to permit administrative suspension in the case of new settlers on fertile lands of the application of Section 344 of the Soil Conservation and Domestic Allotment Act of 1938, as amended, which prohibits the granting of individual allotments in excess of cotton history for previous three years, although, again, the effect of such action on the national cotton program must be weighed.

3. The studies indicate that, if it is administratively feasible to do so, increases in parish allotments should be provided without necessarily applying a uniform percentage distribution of such increase to both old and new farms but rather permitting a greater proportion of the increase to be allotted among new farms.

4. It has also seemed that it would be desirable to grant limited discretionary powers to distinguish between bona fide new settlers who are actually establishing family-sized farms and those new settlers with faulty contracts who are merely in process of clearing land for resale by speculative land owners when applying the flexible provisions under the first three recommendations.

No attempt has been made to deal here with all the problems of new settlement but rather to point out and analyze those which appear most pressing. Therefore, the suggestions herein presented are in no sense complete or all-inclusive, nor do they necessarily represent final efforts with regard to the problems dealt with in this study. Instead an attempt has been made to outline the major lines of action indicated as necessary for consideration by the county planning committees, local and state officials, and others empowered to deal with the problems involved.

AAA leaders. Any changes in the program for distribution of cotton allotments would require further legislation, which, of course, is a matter resting solely with Congress.

Problems in Administering War-Time Shortages of Electric Energy

By JAMES E. GATES*

THE problem of electricity supply, already a difficult one in 1941, is likely to become increasingly acute in 1942, as a result in part of the size of the defense program and the bottlenecks in equipment which that program has revealed, and in part as a result of physical causes beyond control, such as the unprecedented droughts of 1941. We have already experienced one real shortage, in the Southeast last spring, and another is expected both in the Southeast and in New England during the early winter months ahead. Both were caused by drought conditions, which forced a reduction in the rate of operation of the run-of-river hydro plants upon which both these areas considerably rely. With only a small amount of capacity, relative to demand increases, scheduled for installation in 1942,¹ the situation can get no better.

A reasonable estimate of demand² shows that the energy generated in 1941 will run about 170 billion kilowatt-hours, and in 1942 must rise to about 200 billion kilowatt-hours.³ This is a 39%

increase over 1940's total deliveries of 144 billion, and must be achieved with an increase of only 17% in installed capacity.⁴ In terms of increased strain on the plant available, in 1940 the average hours of operation were 3,538; in 1942 they must be no less than 4,100. Translated to strain on the facilities other than hydro, on the assumption that there can be but little expansion in the rate of hydro output, it will mean that these other types of plants, principally steam, must operate at an average rate of over 4,100 hours in 1942 as compared to less than 3,400 hours in 1940.

The expansion which has already taken place in the demand for energy has been supplied partly from increased installations, partly from interconnections with other utilities, partly from overloads on name-plate capacities, but in great part through the operation of equipment which is normally held in reserve. The Federal Power Commission reports⁵ that energy requirements in June, 1941 were running 19.5% above 1940; and demand requirements in June

assumption that some correlation exists between electricity and industrial production, which is up between 16% and 25% over last year and which may increase another 20% next year.

⁴ The Federal Power Commission, in its report entitled "Electric Power Requirements and Supply in the United States, June, 1941, Class I Electric Utility Systems," estimated that the total capacity added to Class I systems in 1941 and 1942 would be 5,276,365 kws. The Edison Electric Institute, in its "The Electric Light and Power Industry in the United States, Year, 1940," Electric Institute, *Publication No. 1-2* (May, 1941), estimates 6,920,000 kws. scheduled for installation in 1941 and 1942. This represents an increase of 17% over the 41,638,956 kws. of capacity reported as of the end of 1940.

⁵ *Op. cit.*, p. 7.

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¹ The scheduled additions amount to 3,500,000 kws. for 1941 and approximately the same for 1942. The significant point, however, is a matter of proportion, since these increases represent only about $\frac{1}{6}$ more installed capacity, whereas energy requirements will go up about 37% in the same period. These statements are based on various estimates which are referred to immediately below.

² This and other estimates referred to are results contained in an unpublished study by the author.

³ The most recent Federal Power Commission figures show that production for the year is up between 16% and 20%. On a 16% basis, the total for 1941 will be 168 billion kilowatt-hours; on a 20% basis it will be 173 billion kilowatt-hours. The estimate used here takes a middle position, which is further strengthened by the

were running 13% above 1940. In two of its power areas, the commission found that demands for energy rose more than 30%, and in critical Tennessee, the area of the spring drought, the demand rose by no less than 27% over the previous June. In six areas peak demands increased by more than 20%, contrasted with the average 13% for the country. In contrast, capacity will increase in 1941 by less than 10% over 1940. Capacity, in other words, is increasing about $\frac{1}{2}$ as fast as energy requirements, although total capacity is increasing almost as fast as peak demands.

All this points to difficulties ahead—which is well recognized by all the agencies that are working on the problem. The early winter months are the times of greatest demand for energy, and there will be a severe strain on the utilities between now and January 1. A shortage seems imminent in New England, and by the time this article appears it may be in full swing, or may have disappeared. Even with crossing their fingers and holding their breaths, some operators are going to have equipment failures, because of overloads and the use of old facilities intended normally for use only as reserve during short periods. Such facilities need more frequent attention, which they are not getting; facilities which are operated at a rate above their name-plate capacities are more likely to fail than those operated within their name-plate capacities.

What will be done in the event one of these plants "lets go" is providing much material for thought by those charged with responsibility for the problem. Many groups are working on the problem, but most of them head up in the Power Branch of OPM, under J. A. Krug, on leave from the Tennessee

Valley Authority. The Federal Power Commission has established a staff to work on problems of power and defense, including this problem of shortages, and its staff was closely connected with drafting and administering the measures to alleviate the spring shortage in the Southeast. That group is working very closely with OPM. Other interested agencies, within OPM, are those in its Division of Civilian Supply, who have been thinking long and hard over this problem. That division has approached the problem in part through proposals to limit the production of load-builders, such as electric refrigerators, washing machines, etc. The REA is interested, particularly in view of the position of its agencies as purchasers of electric energy, and Mr. Ickes has definitely declared that his Bureau of Reclamation is to be a part of the picture. Several state agencies, notably in Vermont, have also attempted to attack the problem.

There are many factors to be considered in devising a program for such an emergency. Not least of the factors to be considered is that the immediate necessity for a program is going to become apparent to the layman very suddenly, as a result of the failure of some item of equipment. Overloads will continue to be piled up by the utilities until some item of equipment fails, and the shortage will be dumped in our laps. When that occurs a program should be ready, administered locally perhaps, but following broad principles laid down by those charged with the making of policy decisions.

The danger of allowing such decisions to be made only when the shortage is upon us is that there will be a tendency to accept the opinion that every local situation is different and must be handled on its merits, without reference to "central" principles. The result is

likely to be a group of *gauleiters* serving the various communities, passing upon the question of who shall have electric energy, and how much they shall have, with the underlying principles being developed only area by area, and then on an emergency basis rather than being planned for. What is needed is careful determination of central policies which can be put into effect at the local level.

The following is an attempt to list some of the factors which must be considered in devising a program to be adopted in the event of a shortage of energy or capacity:

1. *Wherein Should Authority Lie for Enforcing a Program?* Should the program be enforced by the government (state or federal), left to the public utility companies, perhaps under government supervision, or should it be put on a voluntary basis? The voluntary programs for reducing the consumption of electric energy in the Southeast and gasoline on the eastern seaboard should be studied very carefully before there is a decision to adopt the voluntary plan. A government-enforced program, involving perhaps rationing, or priorities as in World War days, would be preferable to one in which those patriots who voluntarily reduce their consumption are the only ones who are penalized.

2. *How Important Are the Competing Uses for New Materials and Equipment?* A complaint often heard is that the Navy exercises its right to take over new generator and prime mover facilities to install in its fighting ships, and perhaps quite properly so. Otherwise some of these facilities could be installed by the utilities and be used as a barrier against any shortage. New merchant vessels, as well as the Navy, are taking some of the capacity for large forgings, and with fighting vessels are acting as a drain upon the steel ingot

capacity in the form of plates. The communications utilities—telephone and telegraph—compete with electric utilities for pole line supplies, including copper wire. Also automobiles compete for a proportion of those things required by the utilities. Even the needs of their owners should be considered in the overall program. Certainly not all utility services are superior to all automobiles.

3. *Which Uses and Users of Energy Are Most Important?* Of late years the utilities, in their efforts to build and improve load factors, have introduced many "luxury" devices which consume electric energy. Notable examples are air-conditioning, ornamental street lighting, and night advertising by stores. Even within these luxury classes, however, are some important users who are entitled to the services, for here again not all air-conditioning should be inferior in status to all lighting. Consider, for example, air-conditioning in hospitals, and contrast that with air-conditioning in moving picture theaters and department stores. Ordinary street lighting is clearly superior to ornamental street lighting, for reasons of public safety. Again, not all domestic uses are superior to all commercial uses. In a rationing scheme it would be necessary not only to set up the commonly used classifications of users but also certain sub-classes which are to have superior rights.

4. *What Are the Possibilities of Re-adjusting the Load to Get a Better Load Factor?* Which of these factors can be shifted easily now, and which can be shifted most easily in the event of a "real" shortage? In the recent southeastern experience certain non-defense industries were requested to shift their operations to the week-ends, a normally off-peak period. In anticipation of a shortage, factories which can operate in off-peak periods should be made to

change now to such operation. In the near future a survey of these possibilities should be prepared, with the view to preparing such a program. In all fairness, those industries which may be asked to shift their hours of operation⁶ should know as soon as possible, in order to enable them to plan for such an emergency.

5. *What Idle Capacity Is Available and How Can It Be Utilized?* There are 9,675,000 kws. of industrial installations in the United States,⁷ operating at about 30% plant factor, at least part of which could be tied into the utility systems and made to carry a portion of the electric load. About 1,000,000 kws. of industrial capacity is ordinarily idle.⁸ Much of that could be either tied into existing systems or removed to utility generating plants where it would be more useful. Attempts are being made now to get the industrial plants to "back-feed" into the system. At least two large industrial plants in the South (Mississippi) have been added to the utility lines, to "back-feed." There are difficulties in the way of synchronizing these plants with the utility systems, and sometimes a change is costly. It is possible, however, to cut off from utility lines those factories which can supply themselves, or parts of factories which can be supplied by the factory generators, leaving the remainder to be supplied by the utility.

In a press statement at the time of the Southeastern shortage it was said that, if the shortage became acute enough it would be possible to bring onto the lines some Diesel electric locomotives, totaling almost 500,000 kws. of capacity, which were available.

⁶ This, of course, may involve some adjustments with labor, but these would have to be worked out.

⁷ U. S. Dept. of Commerce, Bureau of the Census, *Census of Manufactures: 1939*, "Prime Movers, Motors and Generators; Electric Energy Consumed, Summary

If these were available before, they should be made the regular order of things now. That capacity, being very mobile, could be shifted about the country to provide for "tight" situations as they occur.

6. *What Substitutes Are Available?*

For some uses of electric energy there are no substitutes, e.g., in the aluminum industry. It would be idle to speak of changing from electric range cooking to gas, if no gas is available in a particular community.⁹ Furthermore, there is no substitute for electric energy in operating an already operating electric range or refrigerator. It might be well, however, to place definite restrictions on the installation of electric energy users in those areas where shortages threaten to occur. There will be small possibility of developing substitutes for electric energy during the emergency without the installation of new equipment, which would be almost "ruled out" because of the unavailability of new equipment. It would be almost impossible to change a domestic user of electric energy in a range to gas or kerosene, and a shift would involve moving to a commodity perhaps as scarce as electric energy.

7. *What Possibilities Are There for Adjustment?* In determining what groups or sub-groups should be restricted, attention should be directed to the possibilities of economic adjustment by those affected. In the automobile program drafted by OPM, for instance, cognizance was taken of the inability of the small manufacturer to curtail his operations to the same extent as the large manufacturer. Some small business men may find it impossible to

for the United States," *Prime Movers in Manufacturing Plants for Census Years 1939, 1929, and 1919*.

⁸ *Ibid.*

⁹ Even if bottled gas were available, the change would be all but impossible because of the cost of new equipment and its non-availability in view of priorities.

adjust at all, and to refuse them supplies or power may force them out of business. Buildings which have one elevator will find it difficult to curtail the operations of their elevators without cutting them out altogether, as compared, for example, with buildings which have several banks of elevators. Similarly, to cite a particularly vulnerable instance, when restricting the use of lights for night baseball games in the Southeast, you are in effect stopping baseball altogether, day-time baseball having been found relatively unprofitable.

8. *What Method Shall Be Used for Making the Program Effective?* Several methods of regulating power use are available. Among them are taxation and a rationing system. It has also been suggested that rate schedules could be revised to become regressive and thus limit consumption. In the realm of equipment, restrictions on units produced, as in the OPM automobile program, may be the answer. Determination of the method of control to be used should await a study of the efficiency and social impact of the programs.

9. *What Are the Economic Implications for Post-War Readjustment?* "Prince or pauper" industries, where the demand for the product is relatively elastic, should be curtailed, as compared with those where the demand is relatively stable, and conditions of operation fairly constant. The curtailed groups might find it possible to "lead off" in a post-war readjustment. Reference is made here to such items as automobiles, refrigerators, ranges, etc., which can be greatly responsible for any post-war recovery, if by curtailment there is built up a great store of demand to be

released in the post-emergency period. On the other hand, if plants for making large forgings are built as part of a utilities program, the effect of such plants upon economic readjustment in the post-war period should be studied very carefully.

10. *When Should the Program or Programs Be Announced?* To facilitate planning by those affected, the criteria which will be used in setting up a program should be announced quickly. Attention should be paid, however, to the possibility of starting a buying stampede similar to that in silk stockings and gasoline. There is little danger of this in electric energy itself, which cannot be stored, but in another phase of a coordinated program this might become an important problem, as with, for example, utility systems rushing to buy up stocks of materials if the production of such materials is to be cut without being allocated to the companies. Such a situation exists now in many industries, in the absence of an allocation program from OPM. Fear of being cut off with no supplies is forcing companies to increase their inventories, when announcement of a definite program, coordinated in all its aspects, would relieve such fears, stop the buying stampede, and ease the price situation.

11. *What Fuels or Materials Need to Be Conserved?* If coal, gas, oil, water, or any other fuel is to be scarce, the problem will be of a different order, so far as curtailing energy consumption is concerned. There will be added to the capacity problem, which is most important now, an energy problem, which requires a somewhat different solution.¹⁰

If these scarcities are important, as of oil on the eastern seaboard, a program

¹⁰ The problems of energy versus capacity are not always clearly separable. For example, at Massena, N. Y., the aluminum company has requested 80,000

kws. of firm power from New York City because of a shortage of capacity, not of energy, although there is also a shortage of the latter.

should be announced soon, so as to be of maximum effectiveness. This problem of fuel shortage will arise wherever there are run-of-the-river plants, and we should be prepared for it when it arises. If only energy were scarce, it would be relatively simple to devise principles for allocating it to users, as in any allocation or priorities program. Because of the demand problem, however, administration is difficult.

12. What Effects Will the Programs Have on Such Sociological Problems as Distribution of Population? Restriction of installation of new facilities will tend to discourage the spreading out of urban populations to the city's fringes, or the growth of garden cities. If new refrigerators, ranges, and other home-making equipment, including new house services by utilities, are to be restricted, a damper will be placed on the establishment of homes and families.

13. Is It Necessary, for Purposes of Morale or Otherwise, to Encourage Some Groups at the Expense of Others? Can a worker be encouraged to shift to a defense area if there are to be restrictions on his use of electric facilities when he reaches the area? This is a great problem, especially in cities like Washington, Baltimore, Norfolk, and other areas where defense industries are attracting new workers. A complicating factor is that when new demands arise they will not be for readily recognizable areas where defense workers live in a colony, but for miscellaneous additions throughout the larger area, not readily recognizable as having been caused by defense. In a very real sense, if restrictions are placed upon those who live in defense areas, it would become more difficult to attract workers to the areas. Again, is it necessary, perhaps

because politically expedient, or because that group is being asked to increase its pace of production, to give the farmers any preference?

14. What Account Must Be Taken of Over-all Planning, as in the Tennessee Valley Authority, or the Projects of the Bureau of Reclamation? In the total picture, other gains, as navigation and reclamation, may have to be weighed and balanced in an over-all program. Similar considerations apply to the St. Lawrence project.

Needless to say, these are no more than problems which have to be considered in determining criteria for settling the shortage problem as or before it arises. Many of them require decisions on the national policy level, particularly those involving the proposed St. Lawrence project. Others are in great measure administrative problems, as that of readjusting loads to get better load factors, and getting industrial electric plants to "back-feed" to the utilities. No attempt has been made to set forth the complete solution in any case, although in some instances it has been hinted at, as in the case of air-conditioning for hospitals versus air-conditioning for movies. Several, particularly the problem of making the program effective, will require some hard thinking and analysis of administrative techniques before a solution can be reached.

In this connection it becomes particularly necessary to study the experience of other countries which have faced the same problem, especially Germany and Great Britain. Theoretical reasoning about these problems is important, but trial in the crucible of experience is the final test of whether and how any solution would work.

Urban Land Department

MORTON BODFISH, *Editor*

A Technique for Delimiting Chicago's Blighted Areas*

A TECHNIQUE for delimiting Chicago's blighted areas has been evolved in recent work done by the Chicago Plan Commission. The commission was stimulated to find a solution to the problem of setting up definitive boundaries of blighted areas by certain provisions in the Illinois Neighborhood Redevelopment Corporation Law of July 9, 1941.¹ The statute gives city plan commissions advisory powers which imply that the plan commissions must advise whether or not proposed "development areas" lie within "slum and blighted areas."

A legal definition of "slum and blighted areas" is given in the act itself, which states that the term

"Shall mean those urban districts in which the major portion of the housing is detrimental to the health, safety, morality or welfare of the occupants by reason of age, dilapidation, overcrowding, faulty arrangement, lack of ventilation, light or sanitation facilities, or any combination of these factors."

This general description forms the framework within which the Chicago Plan Commission has confined its efforts in seeking boundaries of blighted areas. A significant phrase in the definition requires that "the major portion of the housing is detrimental."

Blight, as applied to urban neighborhoods, is a general term used to describe a condition of advanced deterioration—physical, economic, and social. In this study emphasis has been placed on physical blight since "slum and blighted areas" are deemed by the law to be suitable for wrecking and rebuilding. Chronologically, blight is represented by several stages of development, each showing progressive decline. At the present time these stages of blight are expressed areally in terms of the core, the main body, and the fringe.

In the core of blight, the forces of de-

terioration have reached their maximum development. Surrounding the core, or cores, is the main body of blight in which physical condition for "the major portion of the housing" is so bad that any hope of even short-time conservation is futile. The area fringing the "slum and blighted areas" represents another stage in housing deterioration, a transition belt between the area fit only for wrecking and the area worth conserving. This is called the "area of near blight."

The technique employed in delimiting the boundaries of each of these areas has rested on residential block distribution maps of various housing characteristics prepared from data collected by the Chicago Land Use Survey. Block maps which supplied the limiting factors for measuring slum and blighted areas and near blighted areas were age of residential structures, "substandard" housing, physical repair of structures, and rent. Various coincidences of the patterns of these several maps have been considered in designating the several stages or types of blighted areas.

Slum and blighted areas consist of cohesive units of city blocks which possess the following characteristics:

1. A majority of the residential structures were erected before 1895;
2. A majority of the dwelling units are "substandard" in housing quality, as determined by the Land Use Survey;²
3. Twenty per cent or more of the residential structures are in need of major repairs or unfit for use.

The term "cohesive units of city blocks" expresses the idea that boundaries were drawn to include all areas in which well over the majority of blocks conformed to the definition established. The requirements of advanced age and substandard housing

tions, maps, and unpublished manuscripts has indicated that "substandard" housing conditions are shown by dwelling units (A) in poor condition or lacking heating, lighting or private bathroom facilities, or (B) containing over 1.5 persons per room or an extra family of 2 or more persons (or either if not renting over \$39.99).

* The technique was formulated, applied, and tested under the direction of Homer Hoyt, Director of Research of the Chicago Plan Commission, and with the able assistance of Donald L. Foley.

¹ Ill. Rev. Stats. (Smith-Hurd), c. 32, §§550.1-550.44.

² The Chicago Land Use Survey in statistical tabula-

quality for the *majority* of dwelling units need no substantiation.

It may appear that the third factor of 20% of the residential structures in need of major repairs or unfit for use is a rather low standard for measuring blight, but actually it may be demonstrated quite conclusively from field observation that blocks in which $\frac{1}{2}$ of the housing is in poorest physical condition are very bad places in which to live. Indeed, poor physical condition is the most limiting of the three factors, and the core of the blighted area is revealed in those blocks in which 40% or more of the residential structures are in need of major repairs or unfit for use.

In defining near blight the factor of low rent is highly useful, but it is not adequate as a single test; it must be combined with other factors. In Chicago, near blighted areas are considered to include all cohesive units of densely occupied blocks in which a majority of the dwelling units have rents below \$25 per month and in which either a majority of the dwelling units have housing of substandard quality or in which a majority of residential structures were erected before 1895, and which blocks do not qualify as slum and blighted. Low rent could not be used alone, because the city contains several large neighborhoods with rents under \$25.00 but still with decent and livable housing. The requirement that the blocks be densely occupied (over 50% of lots in use) was made so as to exclude certain sparsely settled areas of low quality housing along the borders of the city which otherwise would be classed as near blighted on the basis of rent and "substandard" housing. Immature areas of decline have planning problems fundamentally different in nature from those areas which have reached maturity long ago and are now experiencing an accelerated rate of housing deterioration. Dense occupancy was not required of slum

and blighted areas, because there is considerable land vacancy in the blighted cores where much demolition has taken place. Also, low rent was not used as a factor in measuring slum and blighted areas because some blocks of definitely low quality in negro-settled areas have rents somewhat higher than \$25.00 per month.

The patterns of blocks which conform to the housing characteristics of the several stages of blight are not solid but in many places are very spotty. In general, the greater the distance from the center of the city the greater the interruptions in block contiguity.

Factors indicating poor housing other than those already considered also were investigated. An attempt was made to measure the inadequacy of light and air in city housing in terms both of lot size and of conformance of structures to present building code requirements as to size of courts and sideyards. It was found that the greater part of the city, including parts even of the better areas, had lot widths of only 25 feet and, although most structures in the blighted areas did not measure up to present-day building code requirements, certain areas outside them measured no better. Overcrowding and lack of sanitary facilities were not considered alone, because both were taken into account in the definition of "substandard" housing. The patterns of structural conversions and number of roomers showed no scheme conforming with the boundaries of physical blight.

At all steps in the process of working out the boundaries of the blighted areas, field investigation proved highly valuable, and the statistical limits set in the office were checked and tested in the field by qualified observers.

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Housing Priorities

THE subject of building material scarcities and priorities is difficult to discuss without creating a somewhat false impression as to the seriousness of the problem or the complexities of the procedure established by the Office of Production Management. The problem of scarcities and priorities arises out of three situations, an understanding of which is basic to a grasp of the building ma-

terial priority question. First, the armament industries are requiring vast quantities of metals. Because apparently there is not enough metal to supply fully the needs of both armament and peacetime industries, part of the metals used in the production of armaments must come from their diversion from production not vital to national defense or public health. The problem does not arise

out of the priority system; it arises out of the material shortages. The second point to be understood is that the construction of houses and other buildings of almost every conceivable type requires the use of some metal parts, a few of the most essential of which are plumbing equipment, furnaces, and electrical parts. For example, no non-metallic conductor of electricity has yet been devised and modern standards of living require heating, lighting, and plumbing equipment made of metal in every house. The third fact bearing on the building material priority problem has to do with the fact that some housing is essential to the production of armaments. Workers cannot build tanks, airplanes, and battleships unless they have housing, and in many defense areas the accommodations for defense workers are inadequate. Hence, the production of houses in defense areas has been provided for as part of the general program to make America the arsenal of the democracies.

In spite of considerable discussion and fear of building material shortages, actually the shortages are confined wholly to the metal parts and accessories. Many of these can be eliminated or the use of critical metals in these parts can be reduced or less critical ones substituted. There are no shortages of the basic building materials, such as bricks, lumber, cement, and plaster. Of course, the actual surpluses of these materials mean little if there are no metal parts to finish houses built with the non-scarce materials. It should also be pointed out that the fear of shortages in building materials involving the critical materials has, to date, been greater than the shortages themselves. Although there have been instances of actual shortages and delays in delivery of orders of metal parts, so far no acute shortage or tie-up of building has occurred as a result of inability to obtain the necessary metal parts. Materials have been available to the builders who were willing to do some shopping around for them and who had cash to pay for them. Stocks of building materials are still available and no restrictions have been placed on their use, but there is no definite knowledge as to the size or location of these stocks or how long they will last. The real problem lies ahead—that is, when today's stocks are gone and building parts involving the use of critical materials, chiefly metals, will be difficult to obtain or possibly not be available at all except by direct al-

location by the Office of Production Management.

Late last summer the situation in metal building materials began to tighten up in a few areas and fears of serious shortages became rather prevalent among some builders and in some government departments responsible for the continued production of public housing for defense workers and their families. To make certain that needed defense housing would be able to obtain necessary materials promptly, the OPM provided for the granting of priority assistance in the ordering of necessary metal materials for houses which qualify as defense housing in Preference Rating Order P-55, placed in operation September 22, 1941. This is one of the limited blanket rating orders identified by the letter "P" that has become so familiar to manufacturers in recent months. This Preference Rating Order provides for blanket priority ratings covering continuing operations to be issued to a particular project involving the construction of one or more houses. The one priority rating certificate may be used by the builder to obtain a preference rating on all of his orders for a definite list of defense housing critical materials. It may be extended downward by the builder's suppliers to enable them to get the materials necessary to fill their orders which are accompanied by a priority certificate. To explain the building material priority system that has been established, a typical building operation involving the use of a priority order will be traced through from beginning to end.

Take, for example, Builder Jones in Norfolk, Virginia, a defense area. Builder Jones sees a market for 10 new houses. The rapid building in the area has depleted the stocks of plumbing and heating equipment and he is afraid that, unless he can obtain a priority rating for his metal parts, he will not be able to obtain delivery on them. As a result he decides to apply for a priority rating for his 10-house project. This application is made to the nearest office of the Federal Housing Administration. Application forms are obtained from his local mortgage broker or savings and loan association. The priority application requires definite information on the size, type, cost, and approximate sale price or rental of the houses and must be accompanied by plans, specifications, and a listing of the quantities of critical materials required to complete the houses.

Builder Jones' houses will not be eligible for a priority rating unless they are built to sell for less than \$6,000 or to rent for less than \$50 per month. His securing of a priority rating is also subject to the plans and specifications calling for an absolute minimum of metal parts. The FHA office eliminates from the plans all excessive quantities of metals and other critical materials.

The FHA technical staff in each regional office notes its findings on the priority application and sends it to the regional office of the Office of the Defense Housing Coordinator. The Housing Coordinator's staff has facts on the demand and supply of housing in all defense areas and information on the size and type of housing accommodations most needed in the defense areas. This office is therefore the representative of the government in determining the need, from the standpoint of the defense program, of this 10-house project. The Housing Coordinator's men find that these 10 houses are within reasonable commuting distance of the defense activity in Norfolk—a requirement which must be met if a priority rating is to be obtained—and also find that the houses are suitable for occupancy by defense workers. The Housing Coordinator's office, therefore, recommends that a priority rating be given to Builder Jones and sends the priority application over to the regional office of the Priority Division of OPM. Here the application and the findings of the FHA and the recommendations of the Housing Coordinator are reviewed and a priority rating is assigned to the project. The particular priority rating assigned to a given project depends in part upon the supply of building materials in the area, because the OPM officials try to assign a rating which will assure the delivery of materials. The rating assigned also depends upon conclusions of the Housing Coordinator's staff as to the urgency of the need for these houses.

Priority ratings range from AA (the highest) down through A-1-a, A-1-b through A-1-j, then A-2, A-3 through A-10. Let us suppose that Builder Jones is given an A-5 rating for his 10-house project, since this is a typical defense housing priority rating. The first thing that Builder Jones does is secure a number of photostatic copies of the priority certificate carrying the A-5 rating which he has received from OPM. In placing his orders for plumbing equipment with Crane Com-

pany, for example, and heating equipment with the Holland Furnace Company he attaches a copy of the priority certificate to his order. Crane Company and the Holland Furnace Company must, according to the regulations of OPM,¹ fill the Jones order ahead of the orders that they might have received before Jones' order but which were not accompanied by a priority certificate or which were accompanied by a priority certificate carrying a higher priority rating. If Crane Company or the Holland Furnace Company does not have sufficient materials to fill the Jones order, they may obtain the necessary materials by ordering from their suppliers and attaching copies of the Jones priority rating certificate, i.e., extending the priority rating "on down." For example, if the Holland Furnace Company needs cast iron for the furnace necessary to fill Builder Jones' order, they order from the X Cast Iron Company 500 pounds of cast iron and attach a photostatic copy of Builder Jones' priority certificate. The X Cast Iron Company is then required to fill this order before it fills any other order, except those which have lower priority ratings.

Builder Jones is able to get priority assistance only on a specified group of materials on the defense housing critical list issued by OPM. This list includes such metal items as reinforcing steel, fire doors, metal roofing devices, metal laths, builders' and cabinet hardware, all types of electrical equipment and lighting fixtures, all types of pipes and metal parts for plumbing, boilers, furnaces and furnace accessories, and heat distributing materials. He is not able to use his priority certificate to obtain materials which are not on the defense housing critical list of materials, such as brick, lumber, and stone.

After Builder Jones has placed all his orders for material, he waits for delivery, except that, if he is sufficiently confident that he will get delivery of the necessary materials without undue delay, he may start to construct the frame of the house and put in the metal parts when they arrive. This completes the typical building operation involving the use of a priority order.

In connection with the building material priority arrangement, it is helpful to explain briefly the announcement made by the Sup-

¹ Priorities Regulation No. 1.

ply of Priorities and Allocations Board (SPAB) on October 9 regarding all building construction. Popular press reaction to this announcement was that it meant the complete cessation by administrative order of all building except that which could get a priority rating. This was not the case at all. SPAB did not issue an order but merely announced a policy to govern the future allocation of materials and the granting of priority ratings to construction projects. No licensing of building of any character was indicated and controls continue to be exercised only through allocating materials or granting priority ratings. There has not been in the past, and is not now, any restriction on building or construction if a builder can get the materials or has them available. During the World War a licensing system was employed to prevent the use of necessary materials and construction not essential to the conduct of the war. Under that system a builder was prohibited by law from building unless he obtained a specific license to construct a house. Today we have a system of priorities and material allocation instead of a licensing system. It may be that, after existing stocks of materials are exhausted, there will be no building except that which can secure material by government order or priority rating, but even then a specific prohibition of non-defense construction is not likely.

The volume of discussion and newspaper comment concerning the administration of priorities and the effect of material shortages on employment and non-defense industries—"priorities unemployment"—has been so great that it is hard to single out the one or two most significant phases of the debate. However, it is a good guess that more people are concerned with the definition of defense housing which the Division of Priorities of OPM has set up than with any other single phase of the building materials priority system. In order for a house to qualify as defense housing and be eligible for a priority rating it shall be

"offered at a sales price or rental within the reach of defense workers for whose occupancy the housing is intended; provided the estimated market price shall not exceed \$6,000 per family unit, if for sale, or the estimated shelter rental shall not exceed \$50 per month per family unit, except where extreme circumstances may require that units exceeding these limits be provided."²

² Procedure for Obtaining Preference Rating for Privately-Owned Defense Housing Construction, issued

The \$6,000 limit on cost prevents housing in the larger metropolitan areas from getting a priority rating. Under present building codes and high construction costs it is virtually impossible to build a house that will sell for \$6,000 in Chicago, New York, and Washington, D. C., for example. Efforts have been made by building organizations to obtain a relaxation or a change in the \$6,000 limit, but OPM officials have so far stood firm in their adherence to the requirement in the original P-55 order.

Those who have challenged the logic of a dollar-limit on the construction cost of homes have used the following general line of reasoning: If one main purpose of the \$6,000 cost or \$50 rental limit is to prevent an excessive use of critical materials, then it would be better to replace the \$6,000 limitation with a limit on the quantities of critical materials that could be used in any house which is granted a priority rating. For example, OPM might state that only one bath tub, 10 electrical outlets, one furnace of medium size, etc., could be used in a house eligible for a priority rating. It might cost \$7,000 to build such a house in Chicago and \$5,000 to build that same house in Atlanta, Georgia, but each would use the same quantity of critical materials and thereby accomplish the purpose of OPM. Government officials are quick to admit that this idea has real merit and its adoption is entirely within the realm of possibilities. However, these officials also state that the \$6,000 limit should be retained even though a poundage or volume limit is imposed because this assures the construction of houses low enough in price rental to be within the reach of defense workers. They state that defense housing which costs \$10,000 but which uses only the minimum of critical materials by being left only partially completed would not ease the defense housing shortage in a defense area.

This particular line of reasoning has been challenged by some who have stated that it does not necessarily follow that the defense workers have to occupy the new houses built in a city in order to have housing accommodations. As new houses are built, more housing accommodations will be available to defense workers through the process of shifting of families even though the new houses built

by the Office of Production Management, September 12, 1941.

in a city are not themselves occupied by defense workers. The defense workers may be able to move into the houses formerly occupied by the persons moving into the new houses. The net effect seems to be the same, except that the defense workers get second-hand houses instead of new ones.

This whole discussion on the limit of the cost of houses eligible for priority ratings is of significance to land economists. It may result in the long needed amendment of building codes and the reduction of building costs so that it will be possible to build houses for \$6,000 or less in cities where this cannot now be done. Already model plumbing and electrical codes embodying smaller quantities of critical materials and effecting some dollar savings have been prepared and their adoption in cities throughout the country will be strongly urged. Furthermore, this \$6,000 limit may hasten the trend toward decentralization, for builders must seek the least expensive land on which to build their defense houses and this land is usually found on the periphery. In this connection it has been suggested that the limitation on the cost of

the houses not include the cost of land. Such a change would be helpful from the standpoint of preventing the priority system from being an important force in urban decentralization.

New developments come so rapidly in this field that it is extremely difficult to keep entirely up-to-date. As this article is being written, SPAB and OPM in a joint statement announced plans to scrap the entire priority system and substitute in its place a system of direct allocation of critical materials. Just what this will mean is still an open question. It is only possible to say that nothing is definite and that constant attention will need to be given, by builders and others interested in housing, to the provisions made by the government defense agencies for housing and construction in the next few years. Decisions of OPM and SPAB officials may have far reaching influences on land values, development of communities, and the ability and desire of families to own their own homes.

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National Resources Board on Land Classification

DISCUSSIONS of the substance and significance of land classification, especially during the past decade, have resulted in considerable controversy. Numerous debates on the scope and meaning of this new field have been held in college halls and at professional meetings. Last year at Columbia, Missouri, a classification conference devoted several days to an exploration of the ramifications of the subject as it had been conceived by men of different professional training in both the natural and social sciences. Despite these discussions the various concepts of "land classification" as viewed by the land classifiers have differed in somewhat the same degree as the six blind men's description of an elephant. Since the National Resources Planning Board began its study of land classification,¹ many professional workers in resource utilization have been awaiting their report with interest. Its statement, it was hoped, would provide a basis for understanding by various conflicting groups.

An indication of the scope and objectives of the study of land classification made by the Land Committee of the National Resources Planning Board appears in the letter of transmittal:

"The report is the first comprehensive exposition of the status, techniques, methods, and areal coverage of land classification in the country. It gives both chronological and areal perspective in this highly technical field. In addition, it points out for the first time the existence of five distinct types of land classification. The recognition of these types should do much to define and clarify the field of action of land classification, to bring about agreement in its terminology, and to broaden its usefulness in the solution of land use programs."

Inasmuch as this study was designed to include those groupings or classes of land made for various purposes by state and federal agencies in rural areas, it was necessary to give a broad meaning to the concept of land classification. The land classification process, as defined in the report, "assigns each body or tract of land in

an area to its proper class in a system of classes. The classes in the system are defined in terms of the qualities or characteristics with which the classification is concerned." Although this definition does not clarify either the field or the meaning of land classification, adoption of this broad definition does permit classifiers to feel that their own concept of land classification, however greatly it may differ from another, does fall within the field. This treatment has the one advantage of generosity but the practical significance of defining "land classification" as the "classification of land" is not obvious.

As a consequence of this broad definition, the committee's concept of land classification includes among others, park development maps, original land office surveys, relief maps, soil surveys, present land use maps, maps depicting land use recommendations or management policies, and zoning maps. In short, it appears that the report is set at a scope to encompass not just some particular technical field but any activity of recording data on maps according to some system of classes.

Although the report is not designed to include all the work done in the field, its stated aim is to furnish a comprehensive survey of land classification activities. Despite inevitable differences of opinion as to what should be included in a comprehensive survey, it is difficult to understand certain omissions in the report. For example, no attention is given to the problem-area classifications made in all states as part of the first planning work of the National Resources Board, nor to types of farming studies, cultural regional maps, and the national land use adjustment map prepared by the Department of Agriculture. Certainly these and similar materials meet the definition of land classification as well as the "Grand Canyon" and scenic highway surveys that are adequately reported upon.

Statements of the scope of land classification and the nature of the projects listed as types of land classification indicate that the concept is conceived to range from relatively

¹ *Land Classification in the United States* (Washington: National Resources Planning Board, 1941).

simple area delineations to areal summations of the planning process. Thus in describing the county agricultural land use planning program, the report states,

"Whether the land classification element in this work consists merely in sorting the area into classes according to desirable land uses, or in the whole job of reaching decisions about what use is best, depends upon how broadly one defined the scope of land classification."

In failing to mark off clearly the field of land classification from the total research and planning process, the identity of the concept has not been firmly established.

As a result of reviewing a large number of land classifications in the United States, the committee recognized five types. They are: (I) land classification in terms of inherent characteristics; (II) land classification in terms of present use; (III) land classification in terms of use capabilities; (IV) land classification in terms of recommended use; and (V) land classification in terms of program effectuation. Of these types of land classification projects in the United States, 75 were selected for identification and analysis as to: (1) title; (2) agency conducting the work; (3) purpose of project; (4) method used; (5) materials produced; and (6) area covered.

Land classifications in terms of inherent characteristics (type I) are the most numerous forms analyzed; 68 out of 75 systems consisting of or including this type. Soils and topography are the principal land qualities of this type of classification. In type II classification, lands are grouped according to their present use. The relationship between land uses and the natural qualities of the land are explored.

"There is one element common to type I and type II land classification which distinguished them from other types. Both deal only with existing conditions; one, the inherent characteristics of the land; the other, the present uses of the land. As a result, both are primarily inventories. Appraisals of potentialities are not involved; no recommendations are made; and no programs of action are formulated."

Both represent a composite largely of field observations and statistical data, which are basic to the other types of classification.

The third type of classification, that in terms of use capability, is designed to determine "... the probable results if a given body of land is put to a particular use" and "... what land use practices are necessary

to bring about a given result." The classification is entirely objective and "what is believed to be good or desirable uses" are not involved. Classifications of this type are based upon an appraisal of (1) the use-capabilities of land for a specific use, such as forestry or agriculture, or (2) the practices necessary to bring about a given result. For example, land may be graded on its adaptability for farming or upon its relative productivity for timber; the productivity being appraised from the point of view of each specific use.

"Typical illustrations of this type of classification drawn from agricultural land uses are furnished by the productivity ratings of the Soil Survey made in cooperation with the State Agricultural Experiment Station, and certain phases of the work of the Soil Conservation Service."

Under the second phase of type III classification, land is quantitatively classified according to expected results under a given use, as, for example, areas that can be expected to produce high yields and yet prevent erosion.

In type IV, areas of land are classed in terms of recommended uses. These classes may be determined as a result of a rather limited analysis of the factors conditioning or affecting land use or they may be areal summations of the land planning process as it is focussed upon particular bodies of land. The complexity of the process varies with the number of land classes and the purpose of the classification. "Land classification in terms of recommended use is based on the constant search for new methods and practices of land use which will promote higher economic and social benefits." Type IV classification is illustrated by rural zoning maps, and by the work of the county agricultural planning committees.

Under the fifth type of land classification, bodies of land are delineated on the basis of management policies. Maps are used to show types of control measures and the time for their adoption in carrying out land use recommendations.

"Some of these projects are concerned only with publicly-owned land allocated to a governmental agency for administration. Typical of these projects are those conducted by the National Park Service and the United States Forest Service on lands set aside, respectively, as national parks and national forests. In both cases, plans for development are adopted and land classification is carried on as part of the management plan for each park and each forest."

Within the five types of land classification recognized by the committee, 75 projects were selected for the preparation of a tabular statement of the nature and scope of classification activities in the United States. This statement analyzes significant land classifications as to agency activity, purpose, procedure, resulting material, and area coverage.

One chapter of the report is devoted to recommendations in the general field of land classification. The first is to the effect

"that land classification be recognized as desirable and in some cases essential in the appraisal of land resources, in the solution of land-use problems . . . and in the development of policies under which the land resources will be utilized for the good of local, State, regional, and national interests."

This statement does not distinguish between the use of such land classifications as soil maps, types of farming, and similar classifications in land resource studies and the fact that land classification is a fundamental and inseparable part of research in the economics of natural resources and in planning for better land use. Indeed, no systematic research or planning can be conceived without classification of some sort. Classification is a step in acquiring knowledge in the field of land resources just as it is in any social or physical science. Land cannot be studied in the abstract nor can land policies be carried out as if land were perfectly homogeneous.

It is also recommended that competent men with good judgment and specific knowledge undertake land classification surveys, and that maps be made a matter of mature cartographic effort. The vexing problem of standardization is recognized by the committee in its recommendations.

"That within a given system of land classification an effort be made to define the land classes in terms which are comparable in the different areas or regions However, standardization in the definition of the classes should not be carried so far as to force the use of a rigidly defined classification in areas to which it is poorly suited."

Sixteen other recommendations are offered, ranging from a suggestion to speed up classification work to a recommendation for establishing a continuing committee in the National Resources Planning Board to act as a clearing house for land classification organizations. Suggestions are made that land classifications be used in planning programs,

that data on types I and II classifications be kept separate, and that in recording the results it be recognized that the maps and other materials have historical and scientific values as well as immediate use. The problem of uniformity is raised again and periodic conferences recommended to attempt to develop comparability. Other recommendations include relating other fields of research to land classification maps, developing reconnaissance methods, and expanding the basic classification work. As a whole, the recommendations are not particularly meaningful to those engaged in land utilization research.

The report is indeed valuable for reference purposes as a compilation of criteria or methods that have been used in classifying rural land. Among the issues raised by the report, however, none is more fundamental than the nature and scope of land classification. At one extreme, are the soil surveys and classifications of vegetative cover; at the other extreme, detailed administrative decisions mapped for execution in place and refined land planning programs established by areas. That a concept of such breadth should cause confusion and misunderstanding is easily understood. As mentioned earlier, the report implies by its recommendations and examples that land classification may be synonymous with the whole field of land research and planning. The report itself furnishes little assistance in defining the field within these broad limits.

The present reviewers are of the opinion that the more inclusive view of land classification is subject to question. First, it does not describe the process involved. Economic analysis of resource utilization takes as its subject of inquiry the social processes which go on in this environment. The social behavior of people as they act individually and collectively in using resources are the focal points of interest, not land per se. The soils, climate, topography, and vegetation making up the physical character of land are of interest only as they form the setting within which social processes occur, but they are not the center of interest any more than are bricks and mortar to the student of industrial processes. The final separation of various locations where different situations exist, distinctive in behavior and in amenability to action, should not logically be considered as anything but a geographic expression of the research conclusions. To be sure, lines are

drawn upon maps around areas containing significantly different phenomena, but the center of interest is not land; the central point is social organization of which natural resources are but contributing factors.

Land economists and others have been prone to overemphasize land in their analytical work. Professor L. A. Salter has probably given the reason for this undue emphasis in stating that in land economics

"... our segment of social science is that in which land is the strategic factor affecting human welfare and since a basic attribute of land is space or extension, there is a tendency to concentrate attention on the area which is our laboratory rather than on the human relations which are our subject-matter and the development of those relations which are our problems."

Not only is land classification a misnomer when used to describe the process by which human behavior is studied in its relation to natural resources but, what is worse, it is erroneous even to imply that this analysis can be achieved by any technique of simply making and amalgamating a series of maps. The unit of study is social process, not land per se; the classification process is broader than is implied by land; and the fact that a final separation is made of various locations where different situations exist, distinctive in behavior and in amenability to action, should not lead to the conclusion that this is a land classification process.

As a means of defining the field to avoid this impasse, it is suggested that only those groupings which involve separation of land according to present use or inherent physical, social, and economic characteristics be considered as land classifications. In terms of the Resources Planning Board report such classifications as types I and II and type III, as a physical productivity index, would comprise the working concept of land classification; and types IV and V classification would be excluded. Land classification thus conceived would include primarily inventory materials in such forms as maps of soils, present land use, tax delinquency, and types of farming. Land groupings of this type embody techniques in themselves, are distinct entities, and constitute a method of organizing basic materials in such form as to furnish insight for research studies or planning programs. Viewed in this manner, land classification becomes a tool in the research or planning process of land utilization rather than the process itself or the final product.

Another distinction in the field of classification is the difference between the knowledge-getting and the planning or social action phases of land program and policy formulation. The last decade has been a period of experimentation in which various techniques have been tried for securing land reform. Mistakes in past policy were evident and the need for a change in patterns of resource use were generally recognized. Out of this situation arose a number of planning and action agencies, particularly in the Federal Government. The research men, planning groups, and action agency administrators were called upon to work together in shaping an agricultural program and in formulating and executing lines of action to bring about better social and economic conditions in rural areas. The function of the expert in this process has not been clear. Some have felt that he should act as a judge of social values in determining the best course of action in a problem area. "Best land use" classifications have been made according to this theory. Other groups have argued that the expert should function as an adviser in diagnosing the cause of economic problems and predicting the consequences of alternative lines of action, leaving decisions as to the best course with democratic planning groups.

The reviewers are of the opinion that this latter concept is the more desirable one. A thorough analysis of any social problem arising in the use of resources can lead to no one decision as to the most effective or ideal pattern for their use. The reason, of course, is that no universally accepted standards exist for evaluating this ideal. Differences in social philosophies bring different social values and judgment as to what type of economy is best. The county agricultural planning program was inaugurated as a large scale attempt to meet this problem by bringing together the expert to advise and point the way, and planning groups to make decisions. In this way it was hoped that desirable land use plans could be formulated cooperatively in the various areas and could be effectively translated into action.

In conclusion, the reviewers feel that the land classification report falls short of setting forth the field of work in a definitive manner. It is believed that research and planning in resource utilization will be expedited by recognition of the inherent limitation of the classification of land to the descriptive art of

arranging and sorting land facts cartographically as a tool for the study and planning of resource utilization. The analysis of the social significance of these and other related facts is a problem involving the whole field of social science research methods, and the making of common sense decisions with respect to all these facts is a problem involving the whole field of social planning, and these

activities are not to be characterized as classification in the cartographic sense, even though the portrayal of some of their results may be partly aided by the use of maps.

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Attacking Low-Income Problems in Rural Areas of New York State

THE New York system of land classification is so well known as to make any description of it unnecessary.¹ It assumes that a large area of land after several generations of use will reflect its productivity in the size and condition of farm buildings, the kind and quality of crops it produces, and the size and type of farm businesses it maintains. Classes are in the ascending scale. Areas of land unsuited to agriculture are mapped as I or II; areas in which practically all the farms are abandoned and where more than 80% of the fields are idle or in brush are classified as "Land Class I." Areas with a large proportion of abandoned farms and the remaining farms operated on a small extensive scale are called "Land Class II." Classes III and above will and do support an adequate living from the land in a progressive measure. During the past 11 years the land of 21 New York counties has been classified according to this method and the results published.

The magnitude of New York State's poor-land problem is indicated by the fact that

30% of the area of the state, outside the parks and metropolitan counties, is in land classes I and II.² Less than 5% of the state's agricultural output comes from these two classes of land. As long as large numbers of families remain on this type of land they will present perplexing economic, social, and governmental problems.

A Study of a Poor-Land Town

In order to study the economic and social effects of poor land on the lives of people and upon their local government, the New York State College of Agriculture in cooperation with the United States Department of Agriculture in 1940 made a study of a New York town.³ Eighty-one per cent of the area of this town is in land classes I and II and the remaining 19% is in land class III; in other words practically the entire town consists of land unsuited or of doubtful value for agriculture. Furthermore, it had virtually no other resources than the land; it is completely rural, having no incorporated vil-

¹ See T. E. LaMont, "Land Utilization and Classification in New York and Its Relation to Roads, Electricity, and Reforestation," *Cornell Extension Bulletin* No. 372 (1937) and Howard Tyler, "Land Classification in New York," *15 Journal of Land & Public Utility Economics* 233-4 (May, 1939).

² A preliminary survey of the state conducted in 1934, in which areas of land classes I and II were segregated from areas of land classes III and higher showed approximately 3,400,000 acres in land class I and 2,500,000 acres in land class II, exclusive of park areas.

³ Counties in New York are subdivided into towns for the purpose of local government. A town usually covers an area of 30 or 40 square miles and may or may not include villages within its area. Each town administration is composed of a supervisor, a road superintendent

and road department, three tax assessors, a tax collector, a welfare officer, a town clerk, as well as justices of the peace.

The survey covered both economic and sociological aspects and was conducted by two enumerators. One enumerator took a sociological record by interviewing the wife while another enumerator obtained the economic data from the husband. The questionnaires were devised to include, on a yearly basis, data on all expenditures and receipts, farm management, employment, relief, gifts, indebtedness, social activities, origin, make-up, and migration of families, household management, and other points designed to measure standards of living. Enlarged aerial photographs were used to indicate the location of each parcel of land and to show the use of each field.

lages, industries, or large public utilities. Some opportunity for industrial employment is available in a city of 45,000 population, 20 miles from the town. In the year the survey was made about $\frac{1}{2}$ of the revenue of the town government was derived from land taxes and about $\frac{1}{2}$ from the state in the form of state aid.

The town was incorporated as a local unit of government in 1822, seven years after the first settler came to the area. By 1880 the town had a population of 1,562 and was then a fairly prosperous lumbering community. Since 1880 the land has been denuded of its timber and the people have gradually moved away so that today the population is about $\frac{1}{2}$ what it was in 1880. Many of the persons who remained in the town began farming the cut-over lands.

Farming this cut-over land has not been profitable because the soils are inherently of low productivity. Glacial action thousands of years ago left the land surface so badly scarred that rock outcrops are common. The elevation of the town varies from 1,150 feet to 1,872 feet above sea level. The topography is therefore poorly adapted to the use of labor-saving machinery. Furthermore, elevation is an important factor determining precipitation, temperature, the length of the growing season, and soil types.⁴

In the center of the town is a small unincorporated village consisting of some 30 dwellings, together with a church, several small stores, and a post office. This is the only settlement in the town.

In 1933 the town had 231 occupied dwellings. Seven years later 34 of the houses had disappeared and 14 others were vacant. Land class III was the only area in the town that did not show a net decrease in the number of dwellings between 1933 and 1940.

A railroad ran through the town until 1938. Before the line was abandoned, it was a reliable and very important source of tax revenue. The year following abandonment of the railroad, the property-tax rate on real estate increased by 19%, and by 1940 property-tax delinquency in the town had reached a 10-year high.

Farm Enterprises

Table I is a statement of income and ex-

TABLE I. STATEMENT OF INCOME AND EXPENSES FOR 221 FAMILIES IN A POOR-LAND TOWN*

Item	Amount	
Income		
Non-relief		
Farm:		
Crop sales	\$ 6,997	
Livestock sales	31,647	
Livestock products sales	55,255	
Miscellaneous farm receipts	10,521	\$104,420
Non-farm:	144,562	
Work away from the farm		
Miscellaneous non-farm receipts	13,156	157,718
Inventory increase (net)		3,152
Relief		
Unpaid taxes and interest	3,318	
Public and private assistance	8,625	11,943
All Income		\$277,233
Expenses		
Farm expenses	\$ 87,439	
Non-farm expenses†	13,860	
Real estate costs	26,832	
All Expenses		\$128,131
Available for living and saving (221 families)		\$149,102
Available for living and saving per family		\$ 630
Available for living and saving per person		\$ 180

* The records of 10 families were omitted from this analysis because of large irregularities in income and expense.

† Of this amount, \$12,474 consists of automobile and truck expense used in non-farm business.

penses for 221 families of the town and illustrates the sources from which the people obtained a living, not including the value of food and fuel produced and consumed at home.

It is interesting to note that crop sales made up a very small proportion of the farm receipts. In the poor areas of New York State farming tends to become as independent as possible of the unproductive soils; livestock enterprises usually predominate. This tendency was shown in this study by the high feed bills and large acreages of idle crop land on most of the farms. During 1939 only 8.6% of the land area of the town was in cultivated crops and grains. Apparently the farmers of the town have adjusted their

⁴ See T. E. LaMont, "An Economic Study of Land Utilization of Chemung County, New York," *Cornell Agric. Exp. Station Bulletin* No. 640 (1936), pp. 37-53.

enterprises to suit the low productivity of their soils, because 49% of the farm receipts were from poultry, 30% from dairy products, and only 6% from crops. Poultry is the enterprise most likely to succeed in competition with areas of higher productivity, because in this section of the United States a large part of all poultry feed is purchased, regardless of the productivity of the soil. Dairy farmers, on the other hand, frequently produce part of the concentrates fed as well as a substantial part of the silage and hay. Crop yields are therefore important. Silage and hay produced in areas of low productivity are usually inferior in quality as well as lower in yield than crops grown in more productive areas. For the same expenditure of money and effort, therefore, farmers in the poorer areas have less and poorer quality feed for their cows than do farmers in better areas.

The table also shows the importance of *non-farm* income in this poor-land town. Work at occupations other than farming made up 54% of all receipts. About $\frac{2}{3}$ of this work was done by the heads of households; one out of five heads of households worked on state, county, or town roads. With few exceptions, road work is highly seasonal, offering employment mostly during the summer months, yet summer employment conflicts seriously with farming and does little to supply needed income during the winter months. Nevertheless, the people in the area were probably wise to obtain as much outside employment as possible because outside work apparently paid better than farming. By deducting farm expenses and real estate costs from farm receipts and inventory increases, a negative farm income figure results.

Unpaid taxes and unpaid interest on indebtedness were included under *relief* because, whenever taxes and interest were unpaid, the individual was not deprived of cash which thereby became available for other purposes. As far as the current year is concerned, unpaid taxes and interest are definitely a form of relief. In many cases delinquent taxes and interest will never be paid. When this occurs, tax revenue must of necessity be derived from other taxpayers. De-

linquent interest is likewise "contributed," either temporarily or permanently, by creditors.

Live-at-Home Program

The value of food and fuel produced and consumed at home and the rent allowance for the use of the dwelling are important items in computing the "real income" of rural families. In this town such items amounted to 26% of the total returns for family labor and capital.⁶

The great variation among households in the value of food and fuel produced and consumed at home indicates that many of the families of the town have an opportunity to improve greatly their level of living by producing a larger part of their food and fuel at home. The 221 households were divided into three groups according to the value per person of food produced and consumed at home. If the lower third of the households had produced as much food at home as did the upper third, the lower group could have added \$55 per person to the amount which they had available for living expenses, or \$165 for a family of three. However, since this makes no allowance for the cost of producing the food, the net returns would not have been quite as large as indicated.

In so far as the people on classes I and II land will remain on their present farms or will retire or relocate only over a long period of time, it is important that they increase their income and standard of living where they now live. Although little can be done to improve the "commercial" side of their agricultural enterprise, much can be done to increase the amount of food produced at home with little more than personal effort. The cost of garden seeds and fertilizer is negligible in comparison with the value of the products harvested from the garden. Canning also requires but little additional cash expense when the products canned come from the garden and the fuel used in cooking comes from the farm woodlot. On the other hand, some additional cash expenses are incurred in keeping a cow or a flock of chickens. In this area, however, pasture is cheap and some of the necessary feed can be purchased

⁶ Total returns for family labor and capital are the amount remaining after farm and non-farm business expenses and interest on indebtedness at contract rate have been deducted from receipts other than relief. The

value of home-produced-and-consumed food and fuel, at farm prices, and the value of the use of dwellings, computed at 10% of estimated full value, are included in receipts.

at farm prices. The added expenses of keeping a cow, a flock of chickens, or a few pigs ordinarily would be but a small proportion of the benefits derived. Family labor used in the production of food used at home can scarcely be considered an expense.

A farm woodlot is an important source of fuel and requires practically no cash outlay. Some families with only a house and a lot bought the timber rights to an acre of wooded land, usually located near by. Most of these rights were purchased for \$10 an acre. In spite of this opportunity, only $\frac{2}{3}$ of the households cut their own wood supply. The families that had their own wood supply used an average of 35 cords per family, valued at approximately \$44 undelivered. Twenty-five per cent of the 73 households that did not cut their own fuel received some form of relief, amounting to an average of \$147 per household. It would appear that relief might have been reduced by $\frac{1}{3}$ or that family incomes might have been increased by \$30 or \$40, if the families had cut their own wood supply. In most cases, idle family labor was available for this purpose.

One operator in the town had been employed by the Works Progress Administration for several years. His family had also received assistance through home relief and the taxes on their property had been unpaid since 1924. Because the county held a tax lien on the property, the family was not permitted to cut firewood from it for its own use. The town, therefore, had to supply this family with coal during the winter of 1939-40. The policy of prohibiting the cutting of firewood on tax delinquent land may be well justified as insurance against the abuse of the privilege, yet the town could probably save much in relief expenditures by sponsoring the creation of a community woodlot. Such a woodlot well managed would not only furnish needy families with fuel but also would be a source of relief employment during winter months.

It is believed that by making a few changes in the agricultural programs carried on by the Agricultural Adjustment Administration and the Soil Conservation Service farmers could be encouraged to produce a

greater share of their living at home. The agricultural programs as now administered call for uniform practices regardless of the productivity of the land. The same allowance is made for applying a ton of lime to good as to poor soil. It is doubtful whether some of the poor soil on which this practice is carried out will ever produce a great enough yield to pay for the cost of the fertilizer. Cultivation of land should not be encouraged in areas where farmers in the past have found farming to be decidedly unprofitable. The present agricultural program is causing farmers in this particular area to fertilize land which in the past has failed to support such a practice. In view of the findings of this study, farmers would probably be further ahead financially if increased subsidies were allowed for gardens and they were encouraged to produce a maximum amount of fresh fruits, vegetables, meat, egg, and milk for home use.

Public Administration

In New York, schools are financed by a school tax imposed on the taxable property lying within a local school district. In addition, the state pays a portion of the cost on the basis of student attendance, the state bearing the greater percentage of the cost of small schools because of minimum requirements set up by the state.⁶

The town studied had 22 school districts entirely or partially within the boundaries of the town. All but three of these districts maintained one-teacher schools, ranging from a school with one teacher and two pupils to another with one teacher and 19 pupils in six grades.

One of the greatest problems is that of educating rural youth, especially in poor agricultural areas where school districts cannot afford the facilities made available to wealthier communities. One answer might be the centralization of schools, but the expense of building new structures and subsequent transportation costs cannot and should not be borne by the already overtaxed school districts.

Like farm programs, education should be adapted to the needs of the persons concerned. Four-H Club projects dealing with

⁶ One-teacher districts receive as state aid a minimum of \$425. With the exception of this minimum, the equalization apportionment is limited to the amount by which expenditures up to \$1,500 exceed the amount of a

four-mill tax on full value. In effect, this means that a one-teacher district usually can maintain a \$1,500 school with a tax of \$4 per thousand on full value.

purebred stock are of little benefit in a poor-land area. The teaching of vocational agriculture is best adapted to areas where farming is profitable and where the sons will continue to take over their fathers' farms. On the other hand, vocational agriculture taught in poor-land areas may yield detrimental results, unless modified to suit the region. Industrial education is probably better adapted to such areas, in so far as the majority of the young people have to seek employment in cities. Here the country boys and girls are forced to compete with persons who have enjoyed the better educational facilities afforded by city schools as well as having the benefit of vocational subjects not available in small rural schools.

At the time the study was made, tax delinquency was becoming an acute problem of public administration. A large number of properties were delinquent, some for many years. In 1940 three small farms in the town had delinquent taxes of nearly \$1,000 each. The county takes title to such farms as these and, when the occupants move, the farms are offered for sale and returned to private ownership, a doubtful procedure from both private and public standpoints. If land classes I and II are unsuited to agriculture (tax delinquency itself is an indication of the substandard nature of the land), mere resale at a low price or, even as a gift, will not change the character of the soil, climate, or the location of the farm.

During 1939 the county sold a farm acquired through tax delinquency to a young married couple. The 170-acre farm together with house and barn sold for only \$200. The county sold this farm although it was completely surrounded by tax-delinquent lands. After its sale the town had to rebuild a public road to the farm. The cost of maintaining the road alone will probably exceed the tax revenues from the farm. The high cost of public services is shown by another near-by farm located at the end of a road 1.8 miles long. It is the only farm on the road. Annual

school and land taxes on this farm amount to only \$32, but the taxes are several years delinquent. A tremendous saving in costs of local government could be made if farms such as these were removed from private ownership or at least not offered for sale after reverting to the county for delinquent taxes. Such action would not only be a blessing to the town but also to the prospective buyer who would thereby be saved from spending a large share of his life attempting to make a profit from land which is unsuited to farming.⁷

Although it is recognized that land classes I and II are not adapted to a sustained agriculture, many families are still living in such areas. Most of these people are too old to move. Many are suffering from physical disabilities. In many cases, their life work and savings are represented by the farms which they own and now occupy. The hope for needed adjustments in these areas lies in the shift that comes between generations. Few young people remain on these poor farms. Improved opportunity for industrial employment provides added incentive for young people to move and should speed the abandonment of poor-land areas, but the younger generation must receive an education if it is to learn of and be equipped for outside opportunities. Meanwhile, the older generation still on the land has to exist. As long as part of the land is occupied, at least a working skeleton of public services must be maintained. These things cost money. The problem of balancing local government, as well as family, budgets is becoming increasingly difficult.

Land classification can show *where* adjustments in land use are needed, but it remains for results of economic and sociological studies to point the way to the least painful means of correcting existing land-use maladjustments.

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⁷ The study of this town has uncovered facts about problems characteristic of many low income areas. With the results of this study as a guide, an enlarged study of low income areas was launched by the New York State College of Agriculture at Cornell this summer (1941). Detailed economic and sociological schedules

were taken on about 200 families in each of three widely separated areas. A definite sampling procedure was followed in selecting the 600 rural families from whom records were taken in an attempt to secure a representative picture of the low income problems of the entire state.

Public Utilities Department

E. W. MOREHOUSE, *Editor*

Elasticity of Residential Demand for Electricity:

A Reply

IN AN article entitled "The Elasticity of the Residential Demand for Electricity" by Howard A. Cutler, which appeared in the May, 1941, issue of *The Journal of Land & Public Utility Economics*, an attempt is made to estimate elasticity by correlating (1) average annual kilowatt-hour consumption per residential customer with (2) average rate per kilowatt-hour. There are two obvious errors in this method, either one of which is sufficient to assure spurious results.

First, the average (i.e., arithmetic mean) residential consumption per customer does not adequately describe the consumption pattern of the residential class of consumers, as will be readily observed from inspection of any typical frequency distribution of residential consumption. The frequency distribution is highly skewed and the distribution of consumers may be radically different for two electric companies having the same *average* consumption per customer. For the purpose of making statistically significant comparisons of residential consumption among two or more companies, consumption should be expressed in terms of the median, quartiles, or deciles, but not in terms of the arithmetic average. A relatively small saturation of electric ranges, water heaters, and space heaters will have an enormous influence on the arithmetic average consumption, but will not appreciably affect the median.

Second, in his attempt to obtain a measure of elasticity, the author necessarily assumes price as an independent variable and consumption as the dependent variable. But price, as measured in terms of average rate per kilowatt-hour, is not an independent variable, because for practically all electric companies the price of residential electricity is not a *single* price but a *price schedule*. The typical price schedule yields a decreasing average rate per kilowatt-hour as the individual customer increases his monthly consumption. For two different groups of residential consumers served by the same utility and under the same rate schedule, the group with the larger average use would be charged

a lower average rate. Following Mr. Cutler's approach, one might plot the average rate and the average consumption for these two groups and draw a curve through the two points. This curve would have a downward slope from left to right. Similarly, one might take a large number of companies or a large number of states, or other groups, plotting the average rate and average use on a chart, the abscissa of which would be the average consumption per customer and the ordinate of which would be the average rate per kilowatt-hour. A curve drawn through these points would approximate a straight line on double logarithmic paper with a downward slope from left to right. Such a curve would represent a generalized expression of the various block-rate schedules in effect for the several companies, states, or other groups. But the curve would by no means express the degree of elasticity of residential demand for electricity. The true elasticity of demand might be anything from zero to infinity, and yet the curve drawn through the points plotted as above would be the same.

The measurement of elasticity of residential demand is enormously difficult. The demand for residential electricity is affected by many variables other than the price of electricity *per se*, such as the availability and cost of electric appliances, housing conditions, income and social characteristics of the population, etc. Moreover, the residential class of users is far from homogeneous, and for this reason special care must be exercised in selecting statistical measures for describing the consumption characteristics of the class. Finally, because of the form of electric rate schedules, average price and average consumption are in varying degrees mutually dependent variables.

A definitive statistical study of the elasticity of demand for electricity would be extremely valuable for theoretical as well as practical purposes.

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Elasticity of Residential Demand for Electricity: A Reply*

FOR many years elasticity of demand has been a favorite subject of the theoretical economists and a great amount of worthwhile effort has been expended in studying it and in determining what demand is, and how it changes in different markets when prices rise or fall. One of the particularly intriguing aspects of this research has been the task of actually measuring with a view to stating numerically the degree of change that is brought about by price changes. Of course, when an elasticity coefficient has been determined by a particular study, it is at best only indicative, and but rarely absolute, for it is the exception rather than the rule for the hundreds of economic forces that were at play during the period covered by the study ever to recombine in the same way.

The usefulness of a reliable elasticity index is unquestioned. The only doubt is in whether or not an index that may be offered is reliable.

In the utility business, as in other lines of business, a reliable index of elasticity of demand for electric service would be valuable in connection with rate problems. Unfortunately, how is a utility operator to know whether an index is reliable or not? If a research economist, without knowledge of the practical problems of utility operations, makes up an index from certain data he has collected, is that to be considered as reliable?

Not knowing exactly how a reliable index can be determined, one can nevertheless easily discover ways in which unreliability may be imputed to an index once determined. For example, suppose two communities of like size are compared, one having lower electric rates than the other. Let it also be supposed that the average customer in the city having the lower rates uses more kilowatt-hours per month than the average customer in the other. Here we may have *prima facie* evidence that lower rates produce greater average use. Should other factors be disregarded and a conclusion quickly reached? No indeed. They cannot be overlooked, but

they often are, because they are difficult to measure—difficult to assign values to for purposes of numerical correlation studies.

In spite of such difficulties the nature of the community and its population must be considered in attempts to explain differences in electricity consumption. Some of the characteristics that result in consumption differences are the size of the community; percentage of foreign born population; percentage of negro population; average number of persons per family; type of home that is preponderant (small apartments vs. single-family homes) or the proportion of each type of home; buying and living habits; and finally, income and the opportunity for jobs. In this last connection, it is generally popular to point out the growth of average consumption in the District of Columbia and in TVA territory, and attribute it, as Mr. Cutler does, to rate reductions. Both of these examples are outstandingly special cases and many factors other than mere reduction in rates contributed to the increased consumption. It is interesting to note the following census data for 1930 and 1940:

City	Population	
	1930	1940
Chicago	3,376,438	3,396,808
Philadelphia	1,950,961	1,931,334
Cleveland	900,429	878,336
Boston	781,188	770,816
Washington, D.C.	486,869	663,091
Memphis	253,143	292,942
Houston	292,352	384,514
Jacksonville	129,549	173,065
Charlotte	82,675	100,899

It should not be overlooked that population increases such as those enjoyed by the last five cities shown above are first of all generally the result of economic conditions that are favorable to greater use of electricity in the home, i.e., more jobs and better average income; and second, they bring about conditions favorable to higher average use per home; for example, more people per home, hence greater use of lights and appliances per home. Also, new homes must be built, which nowadays are designed for a higher "electrical standard of living."

Another set of factors that must not be

* See Howard A. Cutler, "The Elasticity of Residential Demand for Electricity," 17 *Journal of Land & Public Utility Economics* 242 (May, 1941).

overlooked is that relating to competitive fuels, especially gas, for cooking, water heating, refrigeration, and house heating or cooling. The saturation of electric ranges and water heaters, which are important builders of higher average electricity consumption, will naturally be higher in areas where gas is not available, or where it is available only at high prices. And it certainly is not reasonable to expect that a certain low electric rate level will achieve similar results in two areas where the competition is not alike. Hence, we must consider availability of competitive fuels and, moreover, the aggressiveness of sales promotion of the competitive fuels.

Finally, a less important group of factors should not be overlooked—namely, the differences in climate, humidity, temperature, length of heating season, and so on, since these factors definitely affect the amount of energy required for fans, heating, air conditioning, refrigeration, and so on.

Now we see that in analyzing data to determine the elasticity of residential demand for electricity, it is not sufficient to compare the average consumptions in a group of cities having different rates. We must, instead, study the average consumptions in a group of cities having similar characteristics so that we can be sure that the differences observed are attributable to different price levels, and not to differences in other characteristics that affect consumption.

Assume, however, that the difficulties have been surmounted and that a reliable index of elasticity has been worked out. It represents, let it be supposed, a relationship obtained over a period of time including the year 1940. The period covered was a period in which many uses for electricity were developed. Appliances were continually improved. Methods of production improved also, and prices of appliances trended downward. Will the trend that dominated the period during which the most rapid growth of electric utility business continue, or will it change? Present indications are that it will change, at least temporarily. Production of appliances will be curtailed at least in part. Prices will go up, and excise taxes will further increase the cost to the prospective user. These points are mentioned merely because they illustrate forcibly that the experience of 1930-40 cannot be the guide during the next few unsettled years, and to point out that risk always attends attempts to project or use as

a guide the experience of yesterday. In other words, the *reliable* index of elasticity is only reliable within limits, and is not a substitute for good judgment.

In addition to the uncertainties with respect to economic conditions, can it be assumed that the "reliable" index of elasticity will never change? For example, does the elasticity always remain the same no matter what the average consumption may be? It doesn't seem reasonable that it should be the same in two communities, one having an average residential consumption of 200 and the other an average of 2,000 kwhs. per year. In the first case, expansion of consumption through use of readily available appliances is possible. In the second case, large increases in use are feasible generally only in homes that are specifically designed for use of large quantities of electricity. The probability of variation in the elasticity adds another note of uncertainty that would tend to make utility managers hesitate to adopt rate plans based on elasticity calculations.

Again, once the elasticity has been determined, let us assume, by a reliable method, how soon will it operate? If a rate cut is made today, how long will it take for the utility to recover? Will the elasticity operate alone, or will intensive sales-promotion efforts be required to restore the amount of the reduction? The fundamental problem of maintaining solvency restrains utility managers from making rate cuts where an "elasticity study" is the only guarantee that recovery will be made.

It appears now that there are two distinct sets of problems with respect to elasticity of demand for residential electricity. The first is the determination of a reliable elasticity figure, and the second is the task of overcoming the uncertainties that must be surmounted before the elasticity data can be used.

Now, finally, it should be pointed out that, if Mr. Cutler's conclusion is valid, then that alone should be a *warning* to utilities, private as well as public, to proceed with utmost caution on rate cuts. His study shows that unitary elasticity exists in the case of demand for residential electricity. As he points out, this means "one to one ratio between a percentage change in demand and a percentage change in price, with the result that a change in price will be offset by a corresponding change in sales so as to leave the total re-

ceipts unchanged." In brief, this means that, if rates are reduced, the revenue loss will be recovered. There will be no decline in total receipts.

Now this, to say the least, is hardly a comforting situation. Assume a rate cut of 25%. Superficially it will appear that a 25% increase in sales is required to restore lost revenue. If such is the case, and the revenue is restored, who pays for the additional coal burned to supply 25% more electricity; for the fixed charges on additional generating capacity to supply the additional load on the lines? Certainly the load will not all be of the "off-peak" variety. The result is of course obvious; the utility ends up with the same gross revenue, but with higher expenses, hence lower net.

But that is not all. The above superficial analysis overlooks the effect of the conventional rate form for residential electric service. An examination was made of several existing residential schedules and it was found that, if a rate cut of 25% were made,

the average \$2.00 customer would have to increase consumption about 35% before he paid as much as before; the average \$5.00 customer would have to increase his consumption about 73%; and the average \$10.00 customer about 100%. If these are roughly averaged (with allowance for a typical distribution of bills of various sizes), it will be found that the increase in consumption would have to be approximately 50% to restore the revenue in the case of a 25% cut. Now the full seriousness of the situation is apparent. Instead of a 25% increase in load (with concomitant expense) with no additional revenue, a 50% increase would be required.

In conclusion it appears that the arguments set forth above will indicate to no small degree the necessity for being certain about elasticity calculations before acting on them.

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Elasticity of Residential Demand for Electricity: A Rejoinder*

IT APPEARS from Mr. Falck's remark that, in attempting to obtain a measure of elasticity one "necessarily assumes price as an independent variable and consumption as the dependent variable," he has overlooked the character of Schultz's method of determining the elasticity of demand by use of the technique of direct least-squares. It is one of the merits of this method that it takes into account this very fact that there is not just a regression of quantity on price or price on quantity as assumed in the orthogonal least-squares method, but that a mutual interrelationship exists between both price and quantity. It is therefore not assumed by the method that price is an independent variable; on the contrary, it is considered as interdependent with quantity just as the critic would have it.

Relative to the opinion that the curves presented did not express the elasticity of demand but represented a generalized expression of the various block-rate schedules in effect, it may be pointed out that price

and quantity inducements are not peculiar to the sale of electricity. To pick but one homely example familiar to all buyers, one may consider the practice of grocery stores to offer a reduction in price as the quantity taken is increased. For example, canned goods are often sold at 10 cents for one can, two cans for 19 cents. Similarly, milk may sell for 5 cents a half-pint, 8 cents a pint, and 12 cents a quart.

In describing the realized demand for any product, one does not concern himself with how much *may* have been taken at various prices and hence plots a rate schedule representing these hypothetical figures. Rather one presents the fact that at a given market price a particular quantity is *actually* bought. One does not describe the fact that a half-pint of milk may be bought for 5 cents, 4 cents, or 3 cents depending upon the quantity purchased at a given time. Likewise in determining the elasticity of demand for electricity one does not plot a schedule showing what price per kilowatt-hour must be paid when a given number of kilowatt-hours is used. Irrespective of the pricing policy involved, at certain prices

* See Howard A. Cutler, "The Elasticity of the Residential Demand for Electricity," 17 *Journal of Land & Public Utility Economics* 242 (May, 1941).

certain quantities are purchased. The coefficient of the elasticity of the residential demand for electricity is derived from the *actual* number of kilowatt-hours of electricity used at *actual* prices and is not a measure of the particular pricing policy of the different companies which merely shows what quantities *might* be purchased at different prices.

If the critic were to argue that the negative slope of the demand curve is to be explained in part by the rate schedule, which itself is likely to have an elasticity less than unitary because of cost considerations, he then might follow the argument through to the conclusion that the elasticity of demand corrected for this variable is greater than unitary. In this case the conclusion would result in a greater elasticity than is presented in the study.

In selecting a measure of central tendency which is most representative of the over-all consumption pattern of the residential class of consumers, the arithmetic mean is chosen because it is the most direct way of removing the variable size of population units (states, cities, companies). The median, quartiles, or deciles which were suggested by the critic will not necessarily do this. In studying a local situation as contrasted to an over-all study, one might be more interested in the degree of skewness, in which case these measures might be preferable to the arithmetic mean.

The criticisms of Mr. Crowley regarding the study of elasticity may to some extent be attributed to a misconception of the purpose of the study. It is stated very specifically in the article that:

"The writer's purpose has not been to measure the relative strength of the price variable in determining the level of demand, but merely to describe the degree of elasticity as it exists. The problems of weighing variables and determining causal relationship under the conditions of objective rate schedules confront one with the 'chicken-and-egg' dilemma: Is increased consumption the result of lower rates or are the rates lower as the result of increased consumption?" (p. 244.)

The criticisms, however, are concerned with the fact that the article does not explain and describe the factors which have an influence upon the residential demand for electricity. Although he is primarily interested in the question of why the demand is

what it is in any *particular* community, which is certainly an important question, my interest lies in merely showing what the *over-all* elasticity of demand is.

It is clearly recognized that any statistical evaluation of the coefficient of elasticity does not pretend to explain the reason for its particular value. It merely states the typical ratio of a percentage change in the quantity taken to a percentage change in price. There is nothing about the coefficient which in and of itself explains the wherefore of its size.

Mr. Crowley suggests that the District of Columbia and the TVA territory are exceptional cases in the study of the residential demand for electricity and submits change in population as one explanation for the change in the demand. Here as elsewhere the critic is not concerned with the question of what the elasticity is, but rather with an explanation of the cause of its particular value. It should also be pointed out that the conclusion that the demand tends to have an elasticity of unity does not rest upon these two exceptional cases but is derived from a study of the demand, as evidenced by the average kilowatt-hour consumption per residential customer and the average rate per kilowatt-hour, of: (1) customers of 95 companies located throughout the United States and including approximately $\frac{1}{2}$ of the total industry, (2) customers in cities of over 50,000 population in the Chicago and Atlanta districts of the Federal Power Commission, (3) customers of municipal power plants, and (4) customers of private companies as shown by averages for the 48 states.

It is recognized that a knowledge of the elasticity of demand does not offer in itself enough information with which to initiate any change in a company's rate policy, but rather, as stated in the article,

"From the standpoint of an individual firm, however, knowledge of the existence of demand with an elasticity of unity is not enough. Before a reduction of residential rates is to be undertaken, the firm wishes to know the relationship of the increased cost of production to the increased revenue produced, for it is assumed that the firm's interest lies not in producing more electricity but rather in maximizing its net return. . . . The feasibility of a reduction in rates and hence an increase in the production of any particular firm is dependent upon the cost characteristics of the plant in relation to the characteristics of the consumers' demand." (p. 245.)

This point of view is substantiated further by Mr. Crowley's explanation of what might result if these other factors were not taken into consideration and the elasticity of demand for any particular company were gener-

alized from a study of the over-all demand.
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Public Utility Financing in the Third Quarter of 1941

PUBLIC utility security offerings were unusually small during the third quarter of 1941, totaling only \$158 millions, as compared with \$295 millions in the second quarter of 1941 and \$244 millions in the third quarter of last year. Long-term bonds comprise 77% of the total offerings, preferred stock issues 18%, serial issues 3%, and common stock issues 2%. Nearly 3/4 of the long-term bonds were sold directly to institutional investors.

In our August summary we referred to the rule of the Securities and Exchange Commission regarding compulsory competitive bidding in the issuance and sale of securities of registered gas and electric public utility holding companies and their subsidiaries. A few comments regarding the purpose of Rule U-50 will be helpful in outlining what factors to look for in the handling of future issues. The Securities and Exchange Commission, in its release of April 8, 1941 which accompanied the order, implied that its statutory powers with respect to security issues had not been efficiently exercised. That is, hearings were costly and time consuming, and problems were presented for decision which were so complex as to tax the ability of those called upon to make the decision.

Competitive bidding, it is claimed, will bring lower costs of financing. We quote from the release, "... it is one of the stated purposes of the Public Utility Holding Company Act of 1935 to foster economies in the raising of capital so as to enable public utilities voluntarily to reduce their rates."¹ We presume that by the costs of financing the commission is thinking of the net cost to the company including underwriters' commissions, incidental expenses, interest, etc. We have shown these items in our quarterly summaries. In the future we may expect to find it difficult to get comparable data. It appears that issuers will now have to prepare the prospectuses in advance of bidding. The professional services of security brokers will in certain cases be required in order to

determine the nature of the offering and the type of clauses or special provisions to be inserted in the indenture. This factor may tend to increase incidental expenses, although other expenses such as taxes or registering fees will not be affected.

If costs of financing are to be lowered, apparently it will be through smaller underwriters' commissions and lower interest rates. The latter will be difficult to measure since so many different factors affect it. To the extent that expenses classifiable as underwriters' professional services are absorbed by the issuer in preparation of the securities for competitive bidding, there may be a saving in what formerly constituted underwriters' commissions. It is interesting to note that underwriters' commissions in the Wisconsin Power and Light Company issue tabulated in Table I were 1.29%. This odd percentage contrasts with the customary commissions ranging by even amounts from 1.50% to 3.00%.

Long-Term Debt Financing. Table I reveals the great scarcity of publicly sold public utility long-term bond issues during the third quarter. Two issues were sold through underwriters during the quarter, both of which were offered during the month of August. No great significance can be attached to the cost of money when the volume is so small, but the fact that the Wisconsin Power and Light Company bonds were offered at a price to yield less than 3% indicates that costs have not increased appreciably.

Table II contains an analysis of the public utility long-term bond issues which were sold privately during the quarter. These issues total \$89,818,000 as compared with \$32,125,000 sold publicly. The privately sold issues include several which were subject to the SEC competitive bidding rule. Although it is still too early to draw any definite conclusions, it appears that thus far the competitive bidding rule has had a tendency to increase the proportionate amount of privately sold issues. Should this tendency continue, it will have far-reaching influences upon the char-

¹ SEC Release No. 2676, April 8, 1941, p. 7.

TABLE I. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PUBLICLY, THIRD QUARTER 1941

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)	Underwriters' Commissions (H)	Proceeds to Company (I)	Estimated Incidental Expenses (J)	Net Proceeds (K)	Cost to Company (L)
New York & Richmond Gas Co. First Mortgage	4½%	\$ 2,125,000	1966	August	106.50%	3.86%	2.00%	104.50%	*	*	*
Wisconsin Power & Light Co. First Mortgage	3½	30,000,000	1971	August	106.88	2.90	1.29	105.59	.58%	105.01%	3.00%
Total or Weighted Average		\$32,125,000			106.86%	2.96%	1.34%	105.52%	*	*	*

* Not available.

acter of utility financing in the future.

The weighted average yield on issues sold privately was 3.12%. This compares with 3.16% for the second quarter.

Other Utility Financing. Issues with serial maturities offered in the third quarter are listed as follows:

\$2,500,000	Wisconsin Power and Light Co. 3% serial notes due 1949 to 1951
500,000	Wisconsin Power and Light Co. 2¾% and 2¾% serial notes due 1942 to 1948
2,000,000	Florida Power Corp. Debenture 3½'s of 1941 to 1956
\$5,000,000	

Two offerings of new common stock were made to present stockholders during the quarter. Cincinnati and Suburban Bell Telephone Company offered its stockholders 54,796 shares of common stock at par (\$50). Inter-Mountain Telephone Company made a similar offering of 12,500 shares (par \$10). In addition to these two offerings, several holding companies divested themselves of common stock holdings in operating utilities. Although such sales can scarcely be considered new financing, they are of interest because they show the changes that are taking place in the ownership of utility com-

TABLE II. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PRIVATELY, THIRD QUARTER 1941

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)
Coast Counties Gas & Elec. Co. First Mortgage	3¾%	\$ 3,500,000	1971	July	104.75%	3.01%
New York State Gas & Elec. Corp. First Mortgage	3¾	35,393,000	1971	July	104.015	3.04
Inter-Mountain Telephone Co. First Mortgage	3	125,000	1971	July	100.50	2.98
Peoples Gas Light & Coke Co. First and Ref. Mortgage, Series E	3¾	22,000,000	1966	August	100.00	3.25
Peoples Gas Light & Coke Co. First and Ref. Mortgage, Series F	3	15,000,000	1956	August	100.00	3.00
Public Service Co. of Ind. First Mortgage, Series B	3½	4,650,000	1971	August	104.75	3.25
British Columbia Tel. Co. First Mortgage, Series B	4½	1,500,000	1961	August	105.50	4.09
Oklahoma Natural Gas Co. First Mortgage, Series C	3	4,500,000	1956	August	*	*
Missouri Utilities Co. First Mortgage, Series A	3½	3,150,000	1971	September	104.75	3.25
Total or Weighted Average		\$89,818,000			—	—
Total or Weighted Average (Excluding issues for which offering price is not available)		85,318,000			102.39%	3.12%

* Not available.

TABLE III. SUMMARY AND ANALYSIS OF PREFERRED STOCK ISSUES OFFERED, THIRD QUARTER 1941

Company and Issue (A)	Dividend (B)	Principal Amount (C)	Month of Offering (D)	Offering Price (E)	Offering Yield (F)
N.Y. State Elec. & Gas Corp. Cum. Pfd. \$100 par	5.10%	\$12,000,000	July	\$103.50	4.92%
Pacif. Gas & Elec. Corp. Cum. Pfd. \$25 par	5.00%	10,000,000	July	27.00	4.63
Assoc. Tel. Co., Ltd. Cum. Pfd. No par	\$1.25	1,560,000	July	26.00	4.81
San Diego Gas & El. Co. Cum. Pfd. \$20 par	5.00%	1,207,500	September	24.25	4.12
Commonwealth Tel. Co. Cum. Pfd. \$100 par	\$5.00	1,607,100	September	103.50	4.83
Missouri Utilities Co. Cum. Pfd. \$100 par	5.00%	1,400,000	September	99.00	5.05
Total or Weighted Average		\$27,774,600			4.78%

mon stock. These offerings are summarized below:

- \$ 2,362,500 Indianapolis Water Co.—225,000 shares of common stock at \$13.75 per share (\$10.50 par value). Stock owned by Geist interests.
- 5,905,270 San Diego Gas and Electric Co.—590,527 shares of common stock offered at \$14.375 per share (\$10 par value). Stock owned by Standard Gas and Electric Co.
- 750,000 Memphis Natural Gas Co.—150,000 shares of common stock (par \$5), offered at \$5 per share. Stock owned by National Power and Light Co.
- 7,105,000 Northern Natural Gas Co.—355,250 shares of common stock (par \$20) offered at \$32 per share. Stock owned by United Light and Railways Co.
- 2,833,600 United Illuminating Co.—28,336 shares of no par capital stock offered at \$100 per share. Stock owned by United Gas Improvement Co.
- 125,000 Missouri Utilities Co.—125,000 shares of

common stock offered at \$13.50 per share (par \$1). Stock owned by Community Light and Power Co.

\$19,081,370

Third quarter offerings of preferred stock are summarized in Table III. Six issues totaling \$27,774,600 were offered during the quarter as compared with offerings of \$51,753,425 and \$42,598,600 in the first and second quarters of 1941, respectively. The weighted average yield on the third quarter offerings is 4.78%, which is somewhat higher than the average in either of the other quarters (4.55% in the second and 4.54% in the first).

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Book Review Department

Urban Land

Wickens, David L. *RESIDENTIAL REAL ESTATE*. New York: National Bureau of Economic Research, 1941. pp. xxii, 305. \$4.00.

In the preface of this book it is stated that

"The facts made available in the tables which constitute the greater part of this volume, remove real estate and mortgage financing from the list of economic and financial factors about which we know least."

That is indeed a very broad statement and, if it were true, there is little doubt that both cyclical and secular trends could be projected into the future and that the value of urban real estate in the nation several years hence could be measured today with a fair degree of accuracy.

The contents of this volume are largely an estimate of the value of all urban real estate in the United States from 1930 through 1934. According to Mr. Wickens, the value of all real estate in 1930, land together with its improvements, was \$314,000,000,000 whereas in 1934 it was \$203,000,000,000. However, the method used in obtaining the total value is open to criticism and, if laymen instead of economists used these methods, they would undoubtedly be subject to severe censure.

For instance, Mr. Wickens states on page 16 that "Owners' estimates, of which extensive use is made in this study, are the chief source of information concerning the value of real estate." Although an owner is familiar with his property, it is commonly known that he is prone to overestimate its value to a considerable degree, particularly in times of stress and in a declining market. Up to the close of the 1920's, unearned increments were expected and looked upon as normal, and the majority of owners believed that, beyond a current market value, their properties had a speculative value also. During the early 1930's, and even today, the majority of owners in many areas feel that sales prices represent a distress market and are not a true criterion of value.

In the case of rented properties, the author has used a gross-times-rent ratio for determining the value of properties of vari-

ous types. For instance, in the Middle Atlantic region in 1930, he places a value on one-family rented houses at 14.4 times the rental, and in 1934 at 12 times the rental. Buildings of three or more families were valued in this region in 1930 at 14.3 times the rental, and in 1934 at 11.9 times the rental.

Several years ago Mr. Ernest J. Howe, then Chief Financial Advisor of the Insurance Section of the Securities and Exchange Commission, pointed out that, although the five leading life insurance companies of the nation were carrying their foreclosed real estate on the books of their companies at valuations which on the average ranged as high as 14 times gross earnings, nevertheless current market sales supported a rate of only $5\frac{1}{2}$ times gross earnings.

Four or five years ago an appraisal organization made a test of the relation between sales prices and monthly rents of single-family homes in Queens, Nassau, and Westchester Counties, New York, as of 1937. These sales indicated that, in the \$50-a-month range, single-family houses sold at about 9 times the gross; at \$75 they sold at about $9\frac{1}{2}$ times the gross annual rent; and houses renting at \$100 a month sold for about 10 times gross rent.

Thus, by all the tests which this reviewer has been able to apply, it seems that Mr. Wickens' figures constantly err on the side of optimism. Furthermore, for example, in the Middle Atlantic area the author has used a basis of 11.9 times gross rental in valuing buildings containing three or more families. The most optimistic appraisers in the New York area were not using a value of more than 6 to 7 times the gross rent for multi-family properties even in 1929, and the rate today on various types of buildings in urban areas is running from a minimum of $1\frac{1}{2}$ to a maximum of 7 times gross rent.

Every real estate appraiser knows the great danger of using a times-gross-rental-basis method of determining the value of any real estate, and for this reason Mr. Wickens' estimates on value should be used with a great deal of care—even caution.

The real estate market began to decline in 1928, and by 1930 a steady decline in

values had set in. However, this decline was not shown by market sales particularly, because of a diminution in the number of sales occurring. By 1934, in general, owners were valuing their properties far in excess of their then market values. This, it will be remembered, was the first year in which Mr. Roosevelt held office and the nation looked forward to the future as auguring a return to the halcyon days of the late 1920's. Although owners had high hopes, market sales did not in any way substantiate these hopes. So, neither the 1930 nor 1934 figures in this volume should be accepted blindly.

If Mr. Wickens' figures as to the worth of real estate in 1930 (to wit, \$314,000,000,000 in 1930 and \$203,000,000,000 in 1934) are correct, revisions in the previous estimates of national wealth will most certainly have to be made. The National Industrial Conference Board estimated the nation's wealth in 1929 at \$353,000,000,000, and in 1934 at \$287,000,000,000. Robert Doane's figures of the national wealth for 1930 were \$392,000,000,000, and for 1932, \$238,000,000,000; and the Federal Trade Commission in 1935 estimated the national wealth at \$380,000,000,000. Real estate has always been assumed to represent about $\frac{1}{2}$ of the nation's assets but, if Mr. Wickens' figures are to stand as trustworthy, then realty accounts for $\frac{3}{4}$ to $\frac{3}{4}$ of the national wealth.

The reviewer realizes that it is always easier to criticize than to accomplish, and indeed Mr. Wickens' work has been executed with great care. However, it does seem that the foundation on which this author predicates his value estimates is one which is very shaky in character and, before his final figures may be accepted as correct, there undoubtedly should be independent studies to check on the correctness of his estimates.

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Green, Howard Whipple. *POPULATION, FAMILY AND HOUSING DATA BY BLOCKS IN CUYAHOGA COUNTY. Cleveland: Real Property Inventory of Metropolitan Cleveland, 1941. pp. 968, \$15.*

The desirability of tabulating all real property inventory data by individual blocks is now well recognized by appraisers, geographers, sociologists, and students of

city growth and structure. Averages for areas even as small as census tracts conceal the exact line of demarcation between different types of neighborhoods. It is of the utmost importance for the appraiser of real estate to know the condition of housing in the blocks immediately surrounding the property he is valuing. Tabulations for each separate block furnish the indispensable primary data that enable the geographer or the sociologist to establish the exact contour lines which show the rise or fall of rent levels as one approaches the best or poorest residential sections of the city.

Maps showing the eight significant housing factors for over 200 cities have hitherto been prepared by the Division of Research and Statistics of the Federal Housing Administration. The Chicago Land Use Survey has prepared the tabulations for each of the 20,000 blocks in Chicago in 75 volumes. In the real property inventories of a number of other cities, the housing statistics are also published for individual blocks.

This single published volume, however, presents the housing data for a large city by blocks in the most comprehensive and usable form. For each of the 9,233 blocks in Cuyahoga County, or Metropolitan Cleveland, it is here possible to ascertain the number of dwellings of different types, the age and condition of the structures, the race of the household, the monthly rents, the adequacy of housing, the number of persons per room, the duration of occupancy, and the average value and the average mortgage on single-family owner-occupied dwellings.

The date of this exhaustive survey is January, 1940 so that the information is current. It is to be hoped that this compilation will have the wide use among real estate men and students of city structure that it deserves and that it will set a pattern for similar tabulations of data in other cities. It is interesting to note in this connection that the Bureau of the Census is planning to publish one line of 1940 housing data in each block in all cities having 50,000 or more inhabitants in 1930. The hope is expressed that the plans for the next census of housing will provide for the same tabulations by blocks for other large American cities that are here presented for Cuyahoga County.

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Land Resources

Raup, Hugh M. and Carlson, Reynold E. "The History of Land Use in the Harvard Forest, Petersham, Mass." *Harvard Forest Bulletin* No. 20, 1941. pp. 64.

The investigation by Raup and Carlson illustrates the effectiveness of the ecological method when carefully and conscientiously applied. The authors concern themselves with an appraisal of the economic conditions and trends obtaining from early colonial times to the present in those portions of the Town of Petersham now incorporated in the Harvard Forest. The ever changing pattern of ownership resulting from speculation and expanding settlement, the shifts in land use, the rise and fall of agriculture, industry, and population, and the effects of these transitions upon the extent, condition, and composition of the pre-colonial, old growth forest are traced throughout the period of some 200 years. Pains-taking recourse to authoritative, contemporary historical documents, to records of actual real estate transactions, and to various ecological researches are combined with a detailed tract-by-tract inspection of the present cover on all the original properties included in the 2,300-acre forest.

This study is of greater value to land economists and foresters than is at first suspected. It confirms certain hypotheses concerning the relation between geographic environment, stage of culture, and the character and composition of the existing forest. It furnishes valuable clues to what should be the desirable technical objectives of forest management in the region. It serves as a warning to those who, impatient of quick results, blithely disregard the significance of stage of development and the interdependence of community, individual, and environment, whether dealing with forests or with human beings.

Of considerable importance are the implications of the study for present-day, large scale efforts in land-use adjustment. These implications are plain in the portrayal of the ebb and flow of the life of Petersham. It becomes quite apparent that the location and characteristics of the area militated severely against its development as a predominantly agricultural community. Yet this limitation had to be realized only after long years of toil, culminating in the ultimate abandonment of most of the original settle-

ments. It is not difficult to draw the conclusion that an economy based on the essential forest character of the locality, with the woodland held in common and with a consistently low ratio of crop land might have persisted and prospered to the present.

The study indicates that the ecological approach, since it sheds light on the interactions of community—plant or human—and environment, is more realistic and more likely of productive result than investigations limited largely to the more superficial, readily observable elements of a given situation.

Researches of this kind should be encouraged. They might well be recognized and provided for as essential supplements to the more traditional modes of planning endeavor in every significant type-area. They will make a lasting contribution toward a better understanding of the framework within which land-use activities at all stages must be applied.

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Diller, Robert. *FARM OWNERSHIP, TENANCY, AND LAND USE IN A NEBRASKA COMMUNITY*. Chicago: University of Chicago Press, 1941. pp. vii, 192. \$2.00.

According to the author, his study of the Diller community in Southeastern Nebraska was begun as a history of the ownership of farm land "without benefit of strongly held prior opinions on the subject," with the expectation of substantiating certain popular notions about the ills and evils of farming and land owning in the Middle West and of suggesting, on the basis of the study, ways and means of reform. The author says that the facts he found forced a change of opinion and the study developed into an attempt to refute, or in some cases to qualify, the very notions it was originally intended to prove.

After outlining the popular beliefs regarding farm ownership and tenancy, Mr. Diller suggests that the significance of all this body of opinion is not its superficiality but its popularity, and for this reason investigation of the factual basis for these popularly accepted ideas is worth while.

Mr. Diller develops his study by discussing climate, topographical features, and natural forces which have played a dominant

part in the development of the region. He points out that no matter how good the soil, its production, both before settlement and since, has been largely determined by rainfall and temperature; and, even in this land with so little relief, natural features have marked off with sufficient definiteness an economic and even more noticeably a social unit. He does not discuss in any detail the cultural background of the people who originally settled the area. Undoubtedly they were also an important factor in delimiting the boundary lines and in developing the present pattern of ownership and tenancy and the landlord-tenant relationships.

The early land policy of the Federal Government placed more than 50% of the land in the area studied into the hands of a few owners. The speculators and early settlers did not obtain vast fortunes in the western lands. They did function, however, through sale and resale of their land, to distribute it widely among many owners. It is pointed out that with careful planning by the Federal Government ownership might have been widely distributed without use of the speculator group.

The economic history of the Diller community since its settlement about 1880 was divided into two parts. The first period lasted from 1880 to 1920 and was characterized by prosperity. During this period the farmers benefited from expanding markets, both at home and abroad; high prices; low cost of equipment; low cash outlay for living and maintenance; a more or less self-sufficient manner of living; low taxes; rising land values; and virtually no foreclosures. The second period, from 1920 to date, was one of adversity. The farmers suffered because of the agricultural depression, decline in value of markets, low prices, unfavorable crop yields, increased cost of machinery, increased cost of living, and drought—all resulting in many foreclosures. The author states that even though farming may still be profitable it is no longer easy to farm profitably and it takes longer to make progress. Persons of less than average intelligence and patience who used to have a chance have failed at farming since the 1920's, and even farmers better endowed have found themselves poorly prepared for adversity and poorly equipped in knowledge and skill for the kind of farming that has come to be required for success. During this period of

drastic reduction of income there has not been, according to the study, a great loss of property. On the contrary it is pointed out that stability of tenure has been increasing in every decade but one since the settlement of the area. Up to 1910 the relation of land values, profitable farming, weather, and crops in the area was such that a farmer could expect to pay for a farm in a few years.

Mr. Diller says that the principal causes of tenancy in the community studied are largely functional, that

"Since good farming is a matter of long planning and no farm is well developed except after years of consistent effort, stable tenure of the fee is essential. If stable tenure is to obtain, a high proportion of tenancy follows as a matter of course."

He goes on to say,

"Tenancy follows stable tenure in such a community as a matter of course, unless there is to be no ownership of farms by investors or their heirs and by retired farmers, farmers' widows, and farmers' children who retain but do not farm inherited land."

Comparison is made between tenant operators and owners with the conclusion that tenants do not form a socially inferior class, that they are handicapped by no social distinctions, and, furthermore, that tenants temporarily or throughout their active lives need not, and to all appearances do not worry about insecurity of tenure, nor do they move from farm to farm in shiftless habits of discontent. However, it is brought out that most of the tenants in the community operate on a one-year lease, although the author says this is no sign of insecurity of tenure. In his opinion it is well for the community that farming and the purchase of land have become more difficult and, therefore, less popular, even though tenancy has increased because of this process. It has weeded out many undesirable farmers and unfortunate landlords.

It should be mentioned that, among those who have studied the problem, considerable divergence of opinion exists on many of the points raised by the author. In many instances it is possible to interpret the data in the study another way and arrive at entirely different conclusions from those of Mr. Diller. Stable tenure of fee and long-time ownership do not necessarily give security. Numerous studies show conclusively that tenants operating under a year-to-year lease who do

not have long-time assurance of occupancy of the farm do not have security of tenure. Many people confuse the terms stability, security, and long-time occupancy of the farm. It is true that long-time, continuous ownership will increase to some extent the security of the tenants operating the farm, but the reviewer is of the opinion that the implication and interpretation given the data are too broad. Before concluding that stability of fee simple tenure is more important than owner-operatorship, the author should have investigated more fully the attitudes and characteristics of individual operators

in the various tenure groups as they exist in the present community.

His belief that long ownership by non-operators is desirable, even though it leads to an increase in tenancy, should be qualified. Long tenure and continued operation of the farm by the same family are very desirable, but evidence seems to point to the fact that long-time ownership by non-farm operators is not conducive to the best interests of the farm and the community.

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